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The Smoke Nuisance.

AS regards general sanitation England holds the foremost place among the nations of Europe, but in the matter of smoke and its resultant, thick yellow fog, she is at the other extreme. Nowhere do we find air so charged with smuts as ours, fogs so noisome, buildings so soot-begrimed, trees and herbage so blasted, sunshine so short and feeble. Insanitary conveniences, defective drains, foul methods of sewage disposal, polluted streams, are all being steadily improved, and so rapid has been the progress in recent years that the day does not seem far distant when they shall be known only as historical evidences of the lack of civilisation in the nineteenth century. But while other nuisances are being gradually abated, the smoke nuisance increases year by year. Men have even come to look on the pall of smoke which overhangs their little town or village as a trophy of advancing trade, and to glory in it, though it blot out the sun and sky and blast the vegetation in ever-widening circles around their homes.

Perhaps there are few who would admit the truth of an impeachment so bluntly brought against them, but men are judged by their silence as well as by their speech, by their supineness as well as by their actions, and it is perfectly true that in many cases the charge is proved by the fact that the law against the emission of black smoke is a dead letter. Mill-owners and the friends of mill-owners rule the local Councils, and the Nuisance-Inspector, tempering knowledge with expediency, keeps his eyes on the nuisances at his feet, and does not venture to look up lest he should see the nuisances above his head. In the thickly-populated district between Oldham and Manchester it is left to a lady to fight almost single-handed the battle against the local mill-owners. Sometimes she fails to induce the magistrates to convict their fellow mill-owner whom she has sued, and even when she succeeds the fine imposed is so small as to be of little avail in abating the nuisance.

It is cause for satisfaction that in Manchester, Leeds, and other large towns, as well as in London, there are public-spirited men gathering information on the subject, and drawing the attention of householders to the inconvenience, discomfort, and damage inflicted by smoke, and even prosecuting offenders; but at the best little can be done under the existing laws. So long as provincial mill-chimneys are under the control of Local Authorities, and domestic fires are allowed to go scot-free, so long will the smoke nuisance be with us.

Mill fires have much to answer for, as the most casual visitor to our great manufacturing towns can see; and if all boilers consumed their own smoke a great step in advance would have been taken. But the fact remains that boilers are not the only offenders, and sanitarians ought not to rest until house fires also are brought within the pale of the law. "Much, doubtless, can be done," said Sir Henry Roscoe a few years ago, "in preventing the output of smoke from factories and other places in which large quantities of coal are burnt, but, after all, the smoky atmosphere of our towns is caused chiefly by the thousands of domestic fires." And this statement is endorsed by observers all over the country, although with what accuracy it is difficult to determine. The general experience, we imagine, is that, on Sundays and holidays when mill fires are kept low, the atmosphere of our manufacturing towns is much better than on ordinary working days, although it is not by any means as good as it ought to be.

Business men often say that the anti-smoke movement is an amusement of faddists, and try to brand it as a mere æsthetic craze. If there are two things which the average Englishman detests, they are the fad and the æsthete. We pride ourselves on being a practical people, and are even half inclined to glory in Napoleon's sneer that we are a nation of shopkeepers. If trade and æsthetics clash with each other, so much the worse for æsthetics. So say our traders. But they ignore the fact that this question, although it is certainly one of æsthetics, is also one of pounds, shillings, and pence; and, to say the least, it is only fair that our traders should consider it in the same practical commercial spirit which animates them in their other transactions.

In the first place, it must be admitted that coal is at present an absolute necessity. There can be no question nowadays of reviving the first Edward's edicts against the burning of coal, and of reverting to the use of wood as our sole source of heat. Coal we use, and probably shall continue to use in some way or other till the supply is exhausted. The only question for our consideration is, do we burn the coal in a manner consistent with the genius of a practical and commercial nation? For any one who has considered this question in all its bearings, the answer is emphatically no. Whether we look at the thriftless waste of fuel, or at the pollution of the atmosphere (involving loss of light and increased bills for gas and electricity), or at the noisome fogs, or the all-prevailing dirt in our homes, or the damage to gardens and parks, fields and woods, or the delay and danger to traffic, or at the human suffering involved, we are compelled to admit that a nation truly practical and commercial would at once put an end to a business which includes such heavy items on the debit side of its balance-sheet. Unfortunately these items cannot be accurately expressed in terms of £. s. d., and careless people cannot be brought to understand the magnitude of a loss which cannot be simply defined. Something, however, can be done towards pricing out this bill, and however rough the attempt may be, it will probably be of service in drawing attention to the real nature of the problem.

The waste of fuel is one contributor to the smoke nuisance, and is generally due to the faulty construction of the fire-grates in which the coal is burnt. The volatile matters given off by coal under the influence of heat are to a large extent unconsumed, and appear as black smoke at the top of the chimney. If combustion were perfect, there would be no black smoke, and the smoke nuisance would cease to exist. But perfection is not for mortals, and we must be content with the nearest attainable approximation to it. It is not our object at present to suggest improvements in fire-grates, but merely to consider the waste of fuel which faulty grates entail. It has been proved by actual experience that in mill-boilers a saving in fuel of 25 per cent. can be effected by the use of smoke-consuming appliances, but it is not so generally known that in house-fires a similar saving can be effected.

General Morin, twenty-five years ago, showed that ordinary open fires utilised only one-eighth of the heat given off by the coal consumed, while Sir Douglas Galton's grate utilised about one-third. The tests at the Smoke Abatement Exhibition showed that, in five types or classes of grates, the average rise of temperature per pound of coal burnt per hour varied from 2·88 deg. Fahr. for open grates with ordinary bottom grids and upward draught, to 3·81 deg. Fahr. for open grates, underfed (*i.e.*, supplied with fresh fuel beneath the incandescent fuel), and with upward draft. In other words, the average heating power of grates of the latter class was one-third more than that of grates of the former class, for the same quantity of fuel. To obtain the same heat, therefore, the best grates require one-fourth less fuel than ordinary grates. Dr. Pridgin Teale tested the difference in coal consumption between an ordinary kitchen range and the same range fitted with his simple economiser, and found the saving of fuel effected by the latter to be one-third, namely, 36 lbs. of coal a day, equal to 4*l.* per annum. Inquiries from eleven other persons using the economisers revealed an average saving of two-fifths.

In greater London there are over a million kitchen ranges, and we shall not be exaggerating the waste of fuel entailed by these ranges if we assume one-half of them to be wasteful, and if we assess the waste at one-half the amount found by Dr. Teale, *i.e.*, at 2*l.* per annum, this gives a total loss of 1,000,000*l.* per annum in London for this one item alone. But if we add to this the waste of fuel in ordinary open fires, which, of course, are far more numerous than kitchen ranges, although they are not burning so constantly, we shall, at the least, have to double the account, bringing the total loss from waste of fuel in London to 2,000,000*l.* per annum, not including the waste in mill-boilers.

The reduction of the smoke-nuisance which would follow the universal adoption of better forms of fire-grates would not be merely the one-third or two-fifths due to the economy of fuel to this extent, but would be considerably more than this proportion, as the combustion of the fuel used would be more thorough. It is evident that, of two grates emitting the same amount of heat, but consuming different quantities of coal, the combustion in the one using the smaller quantity of coal must, other things being equal, be more thorough than in the other, and this result was shown by the tests of the Smoke Abatement Committee. Open fires, which raised the temperature of a room 2·99 deg. Fahr. per lb. of coal burnt per hour, emitted smoke of a shade* numbered 3·01, while the underfed fires already referred to, with a rise of temperature of 3·81 deg, had a smoke-shade of only 2·82. In passing we may add that some of the coal-fire grates tested emitted smoke of a shade as low as 1·19, while some of the grates burning anthracite and coke were found to have a smoke-shade of 0.

By the adoption of better fire-grates, therefore, we should probably reduce the consumption of coal at least one-sixth, lessen the emission of smoke to an even greater extent, and at the same time effect a saving in hard cash of 2,000,000*l.* per annum in London alone. But this is not the only saving that would be effected. Mr. Livesey in 1890 estimated that a day's fog over the whole of London would necessitate the consumption of 30,000,000 cubic ft. of gas for lighting purposes; but as fogs are usually more or less local and do not often continue the whole day, we may take 5,000,000 cubic ft. as the average loss in gas entailed by a London fog, and as there are on the average thirty-two fogs per annum, we get a total waste of 160,000,000 cubic ft., or a loss (calculated at 2s. 6d. per 1,000 ft.) of 20,000*l.* per annum. This is a small sum compared with the waste of coal, but to it should be added the almost daily waste of gas in consequence of the dulness of the atmosphere due to smoke, even though actual fog is absent. The waste of electricity should also be added to the bill.

The laundry bills caused by the smoky air of towns are in the aggregate enormous. Lace curtains may be taken as an example. In the country such curtains will remain clean a whole summer, while in many parts of our towns they must be changed every week. Even if we assume that the average time which curtains in towns may remain unwashed is a month, and that lace curtains are used for only six months a year, we find that in towns they must be washed five times more per annum than in the country. As washing costs about 9d. or a 1s. per pair, the cost of washing represents a waste of about 4s. or 5s. per annum for each pair of curtains, or, say, 1*l.* a house, and this represents in London alone a loss of 1,000,000*l.* per annum. But blinds and hangings of every kind, and all manner of wearing apparel, suffer in the same way, and when we consider the damage done to fabrics by repeated washing, we shall be inclined to assess the total damages under this head at nearer two millions than one.

The damages to external painting are another very serious item, and even wall-papers and internal painting, picture-frames, and the bindings of books, suffer from the all-pervading smoke and smuts. In fact, there is scarcely anything which is not damaged more or less by the waste products of combustion.

In the matter of trees, plants, flowers, and grass, London is not so severely hit as many provincial towns, but even in London a considerable saving would be effected if the smoke-nuisance were abolished. As far up the river as Kew, the London fogs are disastrous in their effects. The Director of the Gardens wrote a few years ago: "When thick fog occurred almost daily, the injury it did to many plants amounted practically to destruction. The leaves fell off, and the growing plant withered, and in some cases, such as Begonias and Acanthads, the stems also were affected. Flowers, as a rule, fell off as they opened or whilst in bud. Almost all flowers which expanded were less in size than when there was no fog. The flower-buds of *Phalænopsis*, *Angræcum*, some Begonias, Camellias, &c., changed colour and fell off, as if they had been dipped in hot water. In the Palm-house bushels of healthy-looking leaves which had fallen from the plants were gathered almost every morning. Plants which appeared to be perfectly healthy, when shaken would drop almost every leaf."

As architects, we may point to the decay of brick and stone and mortar, and mourn over the dinginess which clothes all our buildings as if they were "Stygian caves forlorn." Play of light and shade is lost, black streaks mar the faces of our newest structures, colour effects are blotted out—dinginess reigns supreme.

Wherever we turn, the smoke-nuisance stares us in the face. It represents a loss of four or five millions of pounds per annum in London alone, and no man can estimate the human suffering it entails by shutting out the invigorating sunshine and by poisoning the air we breathe. The difficulty is to remove it. So many suggestions have been made that to consider them all would require a separate article. One suggestion made to the Chancellor of the Exchequer, a few months ago, was that he should levy a tax on all open fires in houses. Others advocate the taxation of bituminous coal. Another man suggests that gas should be manufactured at the great coal-fields, brought to London in huge pipes, and supplied at a cheap rate for gas-stoves and gas-fires. Others advocate the use of coke and anthracite instead of coal; others the substitution of stoves for open ranges; and others again recommend the use of a central warming apparatus in every house (except, of course, the smallest), in order that the combustion of coal in open grates may be reduced to the smallest possible amount. The day is somewhat distant when electricity will be supplied at a rate low enough to allow of its economical use for warming and cooking, but it is possible that this may be the ultimate solution of the difficulty. Meanwhile, something must be done. The general adoption of the best kinds of fire-range and stove will be a slight palliative, but we firmly believe that no satisfactory reduction of the nuisance can be effected without further legislation. The control of factory chimneys should be placed in the hands of County Councils, instead of being vested in interested Local Authorities, and an attempt must be made to reduce the emission of smoke from houses; improvement would be effected either (as has been suggested) by levying an annual tax on all open fire-grates, or by charging a duty on all manufactured after a certain date. In both cases the amount to be paid might be made to vary in an inverse ratio to the smoke-producing power of the grate. There are difficulties, whichever course is adopted, and there is little probability of any Government making a proposal for levying an annual tax, but it would be comparatively an easy matter to charge a duty on all new fire-grates; in fact, the same thing is already done in the case of goods so dissimilar as whisky and playing-cards.

The statesman who would venture to deal with the smoke nuisance would earn the gratitude of all who have the true welfare of our country at heart, but nowadays there is little hope of new legislation, unless two or three Royal Commissions have reported on the question. We venture to suggest, therefore, that all who suffer from the smoke nuisance — and who does not?—should petition the government for the appointment of a commission to consider the smoke-problem. Why should not the Royal Institute of British Architects pass a resolution on the subject? And all societies of artists? And why should not County

* The scale of shades adopted by the Committee ranged from 0 to 10, the latter being the number for "black smoke."

Councils be asked to petition? And all bodies of men and women who have the sanitary and æsthetic interests of our country at heart? The first coign of vantage is the appointment of a Royal Commission. The information it would collect would be invaluable, and the gradual publication of the evidence in newspapers would do more to educate public opinion on the subject than any possible amount of independent effort. To this vantage-ground, therefore, all efforts should, we think, be directed.

ST. MARY-LE-BOW, CHEAPSIDE.

BY the courtesy of Mr. Charles Innes (of Messrs. Tress & Innes) architect and surveyor to the churchwardens, we are placed in possession of the facts upon which somewhat alarming statements are made concerning the stability of the tower and steeple of St. Mary-le-Bow. The fabric, we are informed, is not as yet in a dangerous condition; on the other hand, certain fissures which have become apparent since last October in the four walls, particularly in the north, south, and west walls, and in the pavement from east to west, of the vestibule on the tower's south side—and probably due, it is alleged, to the tunnelling through the clay for the Central London Railway—demand serious attention. A careful plumbing of the tower proves that the top of the belfry stage, about 115 ft. above the pavement, is 12 in. out of the perpendicular, inclining northwards. Thus the tower has, in part, broken away from the vestibule, and the latter, in part, from the north wall of the church. It appears that the Railway Company, for whom Sir Benjamin Baker is engineer, offer 140*l.* in satisfaction of all liability for damage, if any, arising from the prosecution of their works and traffic. A statement has, however, been drawn up by the church authorities upon which Sir Douglas Fox will be asked to report and advise. Meanwhile, we gather, no remedial measures of any importance are likely to be undertaken. The ringing of the twelve bells, which weigh over 220 cwt., has been discontinued for some months past.

The well-known steeple of St. Mary-le-Bow was erected in front of the old church's site. Its four foot-piers stand upon what Wren describes as a causeway of rough stone, close and well rammed with Roman bricks and rubble at the bottom for a foundation, and all firmly cemented, being 4 ft. thick, 18 ft. below the surface, and lying upon the natural clay (see the "Parentalia"). It measures 32 ft. square at its base, and rises about 120 ft. to above the belfry stage, attaining to a total height of 221 ft. 9 in.—the dragon included. Begun in 1671 and completed six years afterwards, it cost 7,388*l.* The body of the church, erected over the crypt of the Norman fabric, cost 8,072*l.* The rounded stylobate that rises from within the parapet and angle scrolls of the tower carries a peristyle of twelve Corinthian columns, the columns support the flying buttresses which resist the thrust of the upper portion, the spire and lantern being carried by the dome of the inner cylinder, 11 ft. internal diameter, and 9 in. thick. The spirelet is supported by a similar construction within the lantern. The steeple was repaired by Sir William Staines (then a young stonemason) at the end of last century. Its restoration, in 1818-20, by George Gwilt the younger, was rendered necessary by the exfoliation of a wrought iron tie-bar, which had been worked into the masonry, causing the upper part of the spire to become tilted very visibly. Gwilt re-built the upper peristyle and the obelisk for a height of about 40 ft., using red granite for the columns and their entablature at the lantern stage. As the foundations of the church were subsequently discovered to be defective, some important works were carried out under his directions, when the remains, *temp.* William I., of the original building were identified.* In 1867 the galleries were removed, and the interior re-arranged, by Mr. Pedley; in 1879 the interior was renovated and redecorated, and the floor lowered 1 ft., by Messrs. Dove Bros., contractors, under Sir Arthur Blomfield's superintendence. About ten years ago, at a cost of nearly 2,000*l.*, Mr. Innes repaired the stonework of the tower and steeple, and stripped the cement from off the body of the church (of which the design is said to be based upon that of the Temple of Peace at Rome), so as to again exhibit the original walls, constructed of thin red bricks. In the vestry is Hawksmoor's plate, printed for Samuel Harding, showing the design, as at first intended, of a stone portico of two bays on the east side of the tower; that same feature appears as repeated on the tower's west side (where is now Bow Churchyard), in the old model preserved in the vestry.

* See Gwilt's paper, with plates lxi-vi. in Vol. V. of "Vetusta Monumenta"; and the *Builder*, Vol. X. (1852).

NOTES.

The Architectural Peers Again.

LORD WEMYSS did not get much satisfaction out of his attempt, on Friday last week, to get a hearing for his preposterous scheme for making a design for the War Office by a kind of hash of Inigo Jones. Lord Lansdowne told him just the simple truth in saying that he had begun at the wrong end; that instead of saying, "I want a public office containing such and such accommodation, give me a beautiful building to put it into," he practically said—"Here is a beautiful building, shove your public office into it; it has got to get in there somehow." The most regrettable speech made on the occasion was that of Lord Stanmore; regrettable because he showed a real enthusiasm, with which we entirely sympathise, for the cause of grand public architecture; an enthusiasm entirely nullified and rendered absurd by want of knowledge of the system on which buildings must be designed in order to be fitted for their practical purpose. The real mistake in regard to the War Office, as we pointed out when it was first proposed, is that the site is too small and too irregular in line for such a great public building, and that the building was to be made to follow the boundary of the site, like a hotel or a block of houses in flats, instead of being free to follow an independent design. Mr. Young has made a better thing of it than we should have expected under the circumstances; it is not his fault if the design is not more worthy of the occasion; he had to follow the lines of the street curb. A speech like Lord Stanmore's affords only one more example of the anomalous state of public opinion about architecture in this country, according to which it appears that it is only those who have no knowledge of architecture who have a right to speak with authority on the subject, while the opinions of architects are not to be listened to, and the architect, as in this case, is to be scoffed at for deficiencies which are entirely due to the nature of the site forced on him by the Government.

The Law Courts.

WITH the rising of the Law Courts this week the period of small alterations which annually takes place at the Royal Courts of Justice with a view to their improvement will begin. Two lifts will, we understand, be placed in each wing of the building, an improvement to the need of which we have over and over again called attention. The longer this building is used the more glaring become the shortcomings, and more especially the waste of space caused by the central hall. It is to be regretted that some drastic measures are not taken to relieve the congestion of the small passages outside the courts by making connexions with this hall. The main object of the building is that it should be practically useful, and even if the artistic effect of the Central Hall were lessened by new staircases and openings, this cannot be said to outweigh the advantages which would arise from easier communication between the hall and the courts.

The Denmark Carpenters Strike.

IT is satisfactory to find that an arrangement has been come to between the employers and joiners in Denmark by which an end has been put to the strike which has been going on for some time in that country. The origin of that trade conflict we alluded to some weeks ago, and at that time it seemed as if the conflict might be indefinitely prolonged. It is to be regretted—as is the case in every strike—that an arrangement could not have been sooner come to. In this struggle the means of conciliation which are open in Denmark were of no avail. We fear that in a certain number of instances those who are arrayed in these industrial conflicts will always be willing to run the risk of continuing, so to speak, at war, with the chance of complete victory, than go to arbitration with possibly a mere indefinite result. Each litigant in an ordinary law suit, as a rule, expects to be successful, and it is the same in a trade fight.

Bogus Claim under Workmen's Compensation Act.

A PROSECUTION took place at the recent Birmingham Assizes which should not be passed over without some comment. The prisoner was indicted for perjury. The charge arose out of the fact that the prisoner made a claim under the Workmen's Compensation Act against his employers. He alleged that a hammer fell upon him, in consequence of being improperly fastened, and broke his rib. The action was tried in the County Court, and then it was shown by the defendants that the hammer weighed 1¼ cwt., and that if it had struck him on the shoulder as he alleged, it must have broken it. It was also proved that the prisoner had stated to a fellow-workman that he had fallen downstairs, and the surgeon also proved that the injury was of a very trivial character. The prisoner had, moreover, offered money to a fellow-

workman to support his contention. In the result, the prisoner was very properly convicted and sentenced to two years' imprisonment with hard labour. We hope that this bad case is exceptional, but it proves that employers must necessarily exercise great care in regard to claims under the Workmen's Compensation Act, as there is often considerable difficulty in defeating bogus claims, for the claimant is, of course, the chief witness, and there is a natural desire on the part of fellow-workmen not to give evidence against another artisan. In the present instance, various pieces of evidence on the part of the employers made, in the aggregate, a strong case for the defence in the County Court action. It is easy, however, to perceive, in the absence of one or two of them, that the workman might have been able to make out a *primâ facie* case of injury which it would have been difficult to show was untrue.

West End Water Difficulties.

THE water supply to Piccadilly, Jermyn-street, and the neighbourhood seems to be in a very unsatisfactory condition. At a meeting of the St. James' (Westminster) Vestry held on the 3rd inst., the sanitary inspector reported that he had received a number of complaints to the effect that houses in the thoroughfares mentioned had been without water for several days. He visited a number of houses, and found that in each case the water supply for some days past had been intermittent, and that scarcely any water had been available for flushing purposes. The vestry has called the attention of the Grand Junction Water Company to the matter, requesting the company to take immediate steps to maintain a continuous supply. This failure is, no doubt, due to the prolonged drought, and it is not easy to see how the water companies drawing from the Thames will be able to cope with this, and difficulties of a similar kind, in the immediate future, unless further powers are given them to take more water from the river, which is getting lower and lower.

Kent Iron Ore.

ANALYSES of the iron ore discovered at the Kent Colliery works at Dover show that the maximum metallic iron present is 42 per cent. and the minimum 32 per cent. This is not a bad result, and as the bed of ore is stated to be 12 ft. in thickness there is plenty to draw from. The point has been raised as to whether it would pay better to smelt it on the spot or to send it away in the raw state to some such place as Cleveland. High-grade iron ores are so abundant that it is not easy to make ordinary iron ores pay, and, seeing that fuel is near at hand, Dover seems to be the most natural smelting place. As we have mentioned on a former occasion, there is no lack of iron ore at the surface in many parts of Kent and Sussex, and this might be exploited to assist in the general establishment of an iron industry in Kent. The recent discovery, also, of coal in the boring at Ropersole is encouraging in that respect. But it does not do to be prophetic, especially where iron ores are concerned. The analyst, Mr. E. Riley, states that if for the present the lower 6 ft. only of the 12-ft. bed be worked, this area will give an ore averaging 38 per cent. of iron and 12 per cent. of silica in the raw state.

Keyham Dockyard Extension Works.

IN 1896 the work of extending H.M. Dockyard at Keyham was commenced by the firm of Sir John Jackson, Limited, and probably about six or seven years will elapse before its final completion. The work comprises the construction of a tidal basin of 10 acres and a closed basin of 35½ acres, between the two being provided three large graving docks and an entrance lock, available for use as a graving dock if required. Extending along the whole length of the works, and facing that part of the river known as the Hamoaze, will be an outer quay wall, with sufficient water for the largest class of battleships at any state of the tide. The magnitude of the operations in question may be judged by the fact that the coffer-dam by which the river front of the site is enclosed measures more than a mile in length. A considerable proportion of the material to be excavated consists of rubble, originally obtained from rock removed in the construction of the existing docks and basins. This was tipped on the foreshore some thirty years ago, and has a depth of nearly 20 ft. Of the material removed, a part will be used in the making of dock walls, whilst the remainder—now distributed to a depth of 12 ft. over a large area—will be excavated and ultimately applied where most serviceable. Both hard and soft mud have in addition to be removed, as also a quantity of rock. When the extensions now in progress are completed, the Devonport and Keyham establishments will cover an area of over 250 acres, presenting an almost unbroken line of government works more than three miles in length, and including no less than fifteen docks and basins.

Lauderdale-buildings, Aldersgate-street.

THE house, sub-divided of late years, and numbered 57-60, Aldersgate-street, which is now being pulled down, is commonly identified as Lauderdale House, the home of John, Marquis of March and Duke of Lauderdale, *temp.* Charles II., and member of the Cabal. But a reference to the set of three water-colour drawings by C. Tomkins, in the Crowle Pennant, and to James Ilive's plan (March 10, 1740) of the Ward, clearly shows that the Duke's house stood to the south-west of, and adjoined, the meeting-house or chapel at the remoter end, eastwards, of Hare-court. The chapel still remains, but has been enlarged by the addition of two floors, and is now occupied as a warehouse. Tomkins' view of the house's west front delineates a spacious forecourt, and an elevation (of red brick) very like that of the old house (also of red brick) in Aldersgate-street, but Lauderdale House had a row of nine windows on each of the three upper floors, whilst the other, standing over the entrance into Lauderdale-buildings, and between Cherry Tree and Hare courts, had seven window spaces in a row, some of them, however, being blocked. On the same side of the street, further southwards, stood, until 1882, the house of another member of the Cabal, Anthony, Earl of Shaftesbury, built by Inigo Jones for the Tuftons, Earls of Thanet, and illustrated in the *Builder* of January 14, 1882.

The Van Dyck Tercentenary.

THE birthday of Van Dyck will be celebrated at Antwerp with an exhibition of his works in the course of next week, and on the 14th inst. an historically commemorative procession will be marshalled through the streets of his native city. Van Dyck first visited England in 1621, when he did some work for James I.; two years later he went to Italy, where he met the Countess of Arundel, who invited him to this country (1630-1). After a short sojourn at Antwerp he again visited London (1632), at the request of Charles I., and being more worthily received, took up his abode in London. He was knighted by the sovereign, who granted him a life pension of 200*l.*, with the style of Painter to the King, and provided him with lodgings in the house of Edward Norgate, a dependent of Lord Arundel. Van Dyck then removed to a house in St. Anne's parish, Blackfriars, rented (in 1638) at 20*l.*, together with 1*l.* 6s. 8d. tithe, where he lived in great state;* he had, too, summer quarters at Eltham. Shortly before his death on December 9, 1641, he had married Mary Ruthven, Maid of Honour to the Queen, and granddaughter of the unfortunate Lord Ruthven, Earl of Gowrie. Van Dyck was buried, without a monument, in a vault near the tomb of John of Gaunt and his first wife, Blanche, on the north side of the choir of old St. Paul's. It is said that his coffin-plate was exhumed in the digging of Benjamin West's grave. The St. Anne's registers contain entries relating to the burial of two of his servants, and the baptism, on the day of her father's death, of Justiniana, his daughter by marriage.

Puget Exhibition at Marseilles.

IN the Palais de Longchamp, at Marseilles, a gallery has been opened specially devoted to the works of the sculptor Pierre Puget. The collection includes twenty-two original works by Puget; among them a marble statue of a Faun, the medallion portrait of Louis XIV., and an equestrian statue of the same sovereign, the escutcheon carved with the Royal arms which formerly decorated the Hôtel de Ville of Marseilles. There are also various pictures painted by Puget, including one of a scheme for a "Place Royale" for Marseilles, the Baptism of Clovis, and the Baptism of Constantine. There are also some works by Calissaune, the favourite pupil of Puget.

Northfleet School Board Competition.

THE Northfleet School Board, in an advertisement in our last issue, have added another to the list of preposterous demands made upon the architectural profession by the promoters of competitions. They invite plans for a school to accommodate 700 children, for which they generously offer *one* premium of the amount of fifteen guineas, and the plans to which this magnificent sum is awarded "shall be the absolute property of the Board"! We hope that no architect of any respectability will respond to such an insulting offer.

THE SANITARY INSPECTORS EXAMINATION BOARD.—The first examination for certificates of qualification for appointment as Sanitary Inspector, under Section 108 (2) (d) of the Public Health (London) Act, 1891, will be held in London on Tuesday, December 5, 1899, and the four following days. Particulars will be forwarded on application to the Hon. Secretary Mr. W. R. E. Coles, 1, Adelaide Buildings, London Bridge, London, E.C.

* In that parish lived also Isaac Oliver and Cornelius Jansen, painters, and William Faithorne, engraver.

THE ROYAL INFIRMARY COMPETITION, NEWCASTLE-UPON-TYNE.

THE trustees of the Royal Infirmary at Newcastle-upon-Tyne are in the fortunate position of a man who has enough for his wants and a little to spare. In the Diamond Jubilee year they came into possession of over 100,000*l.*, and on the top of this they had a second 100,000*l.* promised by Mr. John Hall under certain conditions, one of the conditions being that the site selected by the trustees for the new infirmary should be abandoned, and a better site obtained. This condition has, after a long struggle, been fulfilled, and there is little doubt that the trustees will be able to avail themselves of Mr. Hall's munificence.

The selected site is a corner of the breezy common known as the Leazes, or as Castle Leazes. In shape it leaves something to be desired. Roughly speaking, it is an acute-angled sector of a circle, and may be described as an equilateral triangle, the north side being a curve with its centre approximately at the south angle of the triangle. The curve is not as regular as this description implies, and the irregularity of the curve adds considerably, of course, to the difficulty of arranging the buildings on the site. The difficulty is further increased by the slope of the ground, which rises about 30 ft. from the south angle to the west angle. Along this side there is an existing road separating Castle Leazes from Leazes Park. Along the south-east side a new road 50 ft. wide will be made, and a footpath runs along part of the curved northern boundary. Five roads converge at the south corner, and some of the competitors have, in consequence, placed the entrance to the infirmary grounds at this point. The best approach, however, is by way of St. Thomas-street, which will join the proposed road on the south-east side of the site, at about one-fourth the distance from the south to the east angle, and it is a point in favour of the selected design that this fact has been considered in locating the entrance-gates and the out-patients' department.

We understand that twenty-three firms of architects were in the first instance invited to compete, and that eighteen firms agreed to submit designs. It is somewhat strange, therefore, that only eight sets of drawings have been received, especially when we remember that the "instructions" had received the approval of Mr. Alfred Waterhouse, R.A., and that he had been retained by the trustees to act as assessor in the competition. The premiums, moreover, although not over-generous, were not inadequate. The author of the design "which in the opinion of the Committee and assessor is most worthy of it," would—the instructions stated—be employed to carry out the work at the usual commission of 5 per cent., and to the authors of the designs placed second, third, and fourth in order of merit, premiums of 150*l.*, 100*l.*, and 50*l.* were promised. As far as number of designs is concerned, the Committee has reason to be somewhat disappointed; but we do not think there is any cause for complaint in regard to the quality of the designs. The competition has been fairly conducted throughout, and the Committee has loyally awarded the commission and the premiums in accordance with Mr. Waterhouse's decision, which is as follows:—

1. The commission of carrying out the work to Mr. H. Percy Adams, of London, and Mr. W. Lister Newcombe, of Newcastle-upon-Tyne, joint architects.

2. The premium of 150*l.* to Messrs. Simpson & Milner Allen, of London.

3. The premium of 100*l.* to Messrs. Gibson & W. A. Pite, of London; and

4. The premium of 50*l.* to Mr. W. Henman, of Birmingham.

The remaining designs are by Messrs. Clark & Moscrop, of Darlington; Mr. J. Walton Taylor, of Newcastle; Messrs. T. Worthington & Son, of Manchester; and Mr. Frank Caws, of Sunderland.

The competitors had a formidable task set before them. One hundred and eighty beds were required in the medical department, and they were to be contained in two twenty-four-bed wards, four twenty-two-bed wards, one ten-bed ward, two eight-bed wards, two four-bed wards, and nine one-bed wards. In the surgical department two hundred and twenty beds were required in thirty-six separate wards, fourteen containing only one bed each. Among the other buildings to be provided were an out-patients' and casuals' department, an accident department, three operating theatres, a lecture theatre for one hundred students, a laundry and mortuary, workshops, a nurses' home, and, of course, the usual administrative block, including five dining-rooms and accommodation for resident doctors, nurses, servants, and porters, about one hundred and fifty in all. The fact that the infirmary is intended to be in connexion with the University Medical School had also to be borne in mind, and this necessitated, among other things, the provision of rooms for students of both sexes and their bicycles.

The successful design by Messrs. Adams & Newcombe bears evidence of much thought and knowledge. The plans are the best submitted, and although the elevations possess little originality, they are good of their kind. The south is made the principal front, and is symmetrically arranged with the administrative block as the central feature. This block is brought forward so as to be only a short distance behind the south ends of the main south wards, and will therefore be a central feature in effect as well as in reality. It is a three-storied block, the ground-story rusticated, with a central and two flanking pavilions raised on attics, and terminated by Mansard roofs; columns and pediments are sparingly but effectively introduced. More might with advantage be made of the south ends of the wards; the rusticated pilasters commencing about half way up the angles of the quasi-towers containing the ward conveniences are not satisfactory. It is clear that the authors have bestowed much more care on the planning and internal arrangements of the buildings than on the external design, and quite rightly so, for if there is one building more than another in which utility ought to be paramount, it is a hospital or infirmary. At the same time this is no reason why the external aspect of the building should not receive its full share of the architect's attention. As far as the plans are concerned, the best design has undoubtedly won. The principal entrance gates are opposite St. Thomas-street; on the left-hand side is the lodge, and on the right the out-patients' department. This is a one-storied building, cleverly planned with a central waiting hall surrounded by consultation and examination rooms, around which is an enclosing corridor, so that patients can pass directly to the dispensary or exits without re-entering the waiting hall. The main corridor of the infirmary runs nearly due east and west, and the administration block is in the centre, brought well forward on the south side of the corridor. Two large ward pavilions are placed on the same side of the main corridor, one on either side of the administration block. On the north side are four large ward pavilions equally spaced, two being behind the two just mentioned and two behind the administration block. At each extremity of the main corridor there are two small ward pavilions, one to the north and the other to the south. A covered way connects the western extremity of the infirmary corridor with the nurses' home, which is placed in the west corner of the site. The laundry and mortuary, &c., are in the east corner. The main lines of the plan are extremely simple, and the details are well worked out. The staircases are sufficient in number, and placed in convenient positions. The branch corridors are isolated from the main corridor by double folding doors and cross ventilation, and are generally well lighted, but those in No. 3 ward stand in need of improvement in this respect. A novel feature in the octagonal operating theatre is a narrow gallery, from which students can more easily witness an operation. The kitchen is on the second floor of the administration block and near it is the servants' dining-room; three other dining-rooms are under those on the floor below, but the porters' dining-room is in the basement, a long way from the foot of the lifts. Advantage is taken of the slope of the ground to get some of the small wards on a lower ground floor under the main wards near the east side of the site. We need only add that the design as a whole shows great care and ability, and is undoubtedly worthy of the honour which it has gained.

Messrs. Simpson and Milner Allen have prepared a plan which is striking in its simplicity. They have succeeded in obtaining this effect by building three stories of wards, the other competitors showing only two complete stories; the plan of each floor contains, therefore—roughly speaking—about one-third or one-fourth less accommodation than the corresponding plans of the other competitors, and the gain in simplicity is marked; but it appears to us that this advantage is more than counterbalanced by the disadvantages due to another story being given to the buildings. The block plan differs in some important particulars from all the others. In the first place, the nurses' home is placed in the centre of the south-west front, and forms, with its right and left connecting corridors, the front of a quadrangle, of which the sides are formed by two ward-pavilions and the back or north-east side by the administration block, and the main corridor running from south-east to north-west. In the second place, the out-patients' department is placed on the central line of the plan at some distance behind the administration block, and would, therefore, be as bad for patients to find as it well could be, and the search would be rendered the more difficult because the laundry and mortuary block would hide it from the new road from which access to it is obtained. Another point of difference in their plan is the use of circular wards, two being provided on each floor. The only other set of drawings containing circular wards is that submitted by Messrs. Worthington & Son, but in this design they are not such a prominent feature as in Messrs. Simpson & Milner Allen's.

The out-patients' department is in itself well planned, being remarkably similar to that in Messrs. Adams & Newcombe's design. It is a one-storied building, with a lofty central waiting-hall, having consulting-rooms and examination-rooms on each side (top-lighted) and exit corridors outside these rooms, so that the patients, after examination, can pass to the dispensary and to the exit-doors without again entering the waiting-hall. Between the out-patients' department and the administration block, the chapel and lecture theatre are placed, and under the chapel is the boiler-room, containing three 8-ft. Lancashire boilers. We could not understand this location of the boilers until, on perusing the report accompanying the designs, we found that the "Plenum" system of warming and ventilation was recommended; the air-ducts necessary in this system are not, however, shown on the plans. The board-room is planned in the basement at the south-east end of the main corridor, instead of in the administration block. The wards for casualties and noisy patients are badly placed around the large central hall of the administration block. The kitchen is on the third floor, and convenient access is obtained by lifts to four of the dining-rooms on the floors below, but the porters' dining-room is 200 ft. from the foot of the lifts. The six ward-pavilions are well disconnected from the main corridor by means of cross-ventilated passages, and are placed symmetrically, one at each end, of the main corridor, two oblong ones on the south-west front about midway between the end wards and the administration block, and two circular wards on the north-east side of the main corridor opposite the oblong wards just mentioned. There are many good points about this design, notably its simplicity of arrangement; but it is questionable whether it was worthy of second place.

As far as the block plan is concerned, the third premiated design, by Messrs. Gibson & Pite, is the worst submitted. The buildings are scattered over the site in a haphazard sort of way, with confusion for result, and the four main ward pavilions run more nearly east and west than north and south (which is the direction indicated in the instructions). The entrance gates are placed at the south angle of the triangular site. Bisect this angle and produce the bisecting line till it cuts the curved northern boundary, and you have the line of the main corridor. At its south extremity there is the "official block"; behind this, on the left-hand side of the corridor, is the irregular-shaped administration block, and on the right the out-patients' department twisted so as to front the new road; next on the right-hand side is a branch corridor, starting at right-angles from the main corridor, and then turning to serve four pavilions placed parallel with the new road, but at some distance from it. Then on the left-hand side we come to another branch corridor leading (with a bend as before) to four pavilions parallel with Leazes Park-road; and at the northern extremity of the main corridor is the nurses' home. The laundry block is well placed near the east corner adjoining the new road. The out-patients' department is also well placed, adjoining the new road, near the end of St. Thomas-street, but the general appearance of the plan is one of crowded confusion.

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This arrangement has had a further disadvantage, as it was impossible to get a complete plan of any one floor of the group of buildings on the size of stretcher demanded in the instructions, and, consequently the authors have been compelled to cut up the whole into parts, and to show one pavilion on one stretcher and another on a second, the administration block on a third, and so on. After puzzling through this confusion for a while, one begins to see that the authors of the design are well acquainted with the details of hospital planning. The wards are excellent, the approach corridors being separated from the main corridor by folding doors and ample cross ventilation, and the conveniences and balconies being well planned so as not to interfere with the light and air of the side windows of the wards. The out-patients' department is, in itself, the third in merit among the designs submitted, and it certainly has a considerable advantage over Messrs. Simpson & Milner Allen's in the matter of position. It is a pity that so much ingenuity and knowledge have been bestowed on a block arrangement radically faulty.

Mr. Henman has gained the fourth premium with a design much better conceived than the last. His main corridor runs due east and west, and the south is made the principal front. In the middle is the administration block, with the chapel for central feature. Right and left of the administration block are the principal pavilions—two on the south of the main corridor and two on the north, and at the ends of the main corridor are other pavilions. The nurse's home is placed behind the administration block, and is isolated from it and from the main corridor by means of a conservatory. The laundry is in the north-east corner of the site adjoining the new road, as in the other premiated designs. The elevations are among the best submitted, and have the same general character as Mr. Henman's work at the Birmingham General Hospital. The chief points of difference between Mr. Henman's plans and the other premiated plans are in the out-patients' department. Whereas the other premiated designs have the out-patients' department in a separate building only one story high, Mr. Henman's plan shows it in the basement or lower ground floor, the central portion being under one of the ward pavilions; this arrangement does not lend itself to adequate lighting or ventilation of the waiting hall. The consulting and examination rooms spread out beyond the walls of the wards above, like the aisles of a church, but there is no enclosing corridor, so that patients after examination must perforce re-enter the waiting-hall. Other defects in the plans are the dark corridors in the nurses' home; here we find a T-shaped corridor, the top part lighted by windows in the ends, but the long limb (140 ft. long) has nothing but borrowed lights. There are also some wards shaped like an elongated T; one bed in each of the small recesses forming the head of the T is badly placed against an internal wall. The dispensary is marred by a mezzanine corridor carried through it at about half its height. Notwithstanding these defects, the design, in our opinion, was worthy of a higher place.

The only other design which stood much chance of a premium is that by Messrs. T. Worthington & Son. The plan is simple, but the wards are spread out so much (a good feature in itself) that the buildings are rather crowded against the northern boundary, which is not a good feature. The nurses' home is placed near the west corner of the site, and from it the main corridor runs in an easterly direction, passing on the left hand (north) a circular ward, then on the right (south) an oblong pavilion, another on the left, another on the right, then through the administration block, another pavilion (the fifth) on the right, a sixth on the left, a seventh on the right, and an eighth on the left. Under the seventh pavilion is the out-patients' department, which, quite apart from this initial defect, is not well planned. The laundry and mortuary are placed about the middle of the curved side instead of in the east corner. The main corridor is better ventilated than any of the others, but this result has been gained by spreading the buildings over a large extent of ground. The branch corridors are isolated from the main corridor by bridges, but in some cases there is a length of 60 ft. (from the cross-ventilated portion to the ward) without either direct light or ventilation. The kitchen, scullery, store-rooms, &c., are on the third floor of the administration block, with lifts conveniently arranged for service to all the dining-rooms except the porters' room, which is about 100 yards from the foot of the lift, and is not accessible except by passing outside the building. The wards are injured by having the day-rooms placed at their free ends, and by having the conveniences planned at the sides of the wards in such a way as to stop the free access of light and air to the nearest windows. The staircases also are insufficient, and the eight-bed wards might have been better planned. It is, however, a highly creditable design, and in external appearance is one of the two best.

Mr. J. Walton Taylor deserves commendation for his clever block arrangement, but it was a mistake to place the out-patients' department between the administration block and the main corridor in such a manner that the narrow corridor connecting these must be used by out-patients as well as by officials and visitors. Mr. Caws's design shows good grouping of the blocks, but is defective in detail. The elevations are fussy; eight towers and two or three score of turrets or chimneys rising 22 ft. above the parapets are a trifle too much for pleasure. Messrs. Clark & Moscrop have the main corridor arranged in the shape of the letter H, with wards at right angles to the side-strokes.

In the estimates of cost there is as usual considerable difference. Messrs. Adams & Newcombe's estimate appears to have been carefully prepared by cubing, among the rates allowed being 4d. for shops and shed, 7½d. for nurses' home, 8d. for pavilions, 9d. for administration block, 11d. for chapel, and 1s. for the three operating theatres—total estimate, 149,834*l.* 17s. 6d. Messrs. Simpson & Milner Allen reach a total of 169,384*l.* by pricing all the buildings at 9½d. a cubic foot, and adding 1,500*l.* for boundary walls and gates, &c. Messrs. Gibson & Pite adopt the same method, but allow 10d. a foot, and add 3,600*l.* for walls and gates, &c., obtaining a total of 214,631*l.* Mr. Henman thinks 8d. a foot sufficient, and makes his estimate (including 3,810*l.* for walls, &c.) 159,574*l.* These estimates cannot all be correct.

In the matter of warming and ventilation, there is an even more striking difference between the four successful competitors. Messrs. Adams & Newcombe refer to their unsatisfactory experience of the propelled-air system of ventilation, and recommend "natural" ventilation, the stoves and radiators to have suitable fresh-air inlets, and extract-shafts to be taken from the side walls near the ceilings. Messrs. Simpson & Milner Allen advocate the "plenum" system of ventilation as adopted at the Victoria Infirmary, Glasgow, and the General Hospital, Birmingham, and add, "There is now no doubt of obtaining efficient results in a building properly designed for its adoption." Messrs Gibson & Pite suggest the "vacuum" system of ventilation, with stoves and steam-heated radiators for warming. Mr. Henman somewhat tentatively adopts open fires and steam-heated pipes and radiators for warming, and "natural" ventilation, except in the operating theatres, out-patients' department, and casualty wards, where he thinks that electrically-driven fans should be fixed to assist ventilation. Who shall decide when doctors disagree?

THE ARCHITECTURAL ASSOCIATION:

THIRTIETH ANNUAL EXCURSION: SALISBURY.

(*Continued from last week, page 129.*)

Wednesday.

This being a day devoted to the close vicinity of Salisbury, carriages were taken from headquarters, and a charming drive along the valley of the Avon formed the major part of the day's journeyings. The first halt was made at the little village of Stratford-sub-Castle, lying beneath the shadow of Old Sarum. Here, to the excursionists, the objects of interest were the church and vicarage, both small, but pleasing in their old-world simplicity and quiet restfulness. The former consists simply of nave and chancel, with square western tower, over the west door of which is the inscription, "Erected Anno 1711," and, on the face of the tower at a higher level, "Tho. Pitt, Esq., Benefactor," reminding us that at the manor house of Stratford-sub-Castle resided William Pitt, Earl of Chatham, who first sat in Parliament for the vanished borough of Old Sarum. Here the use of flint and stone in conjunction is to be noticed, for we are now on neutral ground between the chalk and limestone districts. The church seems to have received considerable constructive benefactions from "Tho. Pitt, Esq.," for the reredos is evidently of that date, and at the same time additions, though not improvements, were made to the Perpendicular chancel screen. The pulpit with its sounding-board, hour-glass, and frame, as well as the waggon-headed plaster-ceiled roof with its carved bosses and corbels, are of Jacobean date, probably co-eval with the vicarage. This is fixed by the inscription over the door, "Parva sed apta domino, 1673," an inscription fitly applying to the front portion of the house, with its mullioned windows, low ceilings, and small rooms, but negatived by later masters, for in the eighteenth century a considerable addition was made at the rear. Even this is to-day mellowed by time, and as taste in architectural matters has now sufficiently advanced, was duly admired, as was also the unpretentious, old-fashioned garden and the fine avenue of limes from the vicarage to the church, the whole constituting a charming picture of rest and quiet which it is to be hoped no rash restorations or improvements may mar or spoil.

From Stratford-sub-Castle the excursionists proceeded still along the valley of the Avon to Lake House, a charming house of early seventeenth century date, beautifully situated on ground rising steeply from the river. Here, again, we have the use of flint and stone, the whole façade being in chequers of these materials. The entrance front is perhaps the most striking, with five uniform gables, two semi-octagonal bays, and central square porch. The party were met by the present owners, Mr. and Mrs. Lovibond, and hospitably refreshed as well as informed by the host, who showed them through the house and pointed out the intensely conservative underpinning of the basement walls, which he had carried out to preserve the building from destruction threatened by the imminent failure of the chalk of which the foundations were originally constructed. It is a pleasure to find absolutely necessary repair carried out with so much regard to the retention of the old aspect of the building and fidelity to its history, as has been here the case, by a sympathetic owner and his equally sympathetic architect, Mr. Detmar Blow. Internally, also, the character of the house has been maintained. Oak panelling has been cleaned of paint, old fragments replaced in their apparently original position, but nothing in the way of imaginative restoration or improvement. The result is a perfectly livable house, sound and strong for years to come, and with all its history clearly written and unobscured. Chimneypieces, staircases, panelling, and other details furnish plenty of material for study, and the hour spent at Lake House proved all too short.

Still journeying along the right bank of the Avon and passing through Amesbury to the garden houses of Amesbury House, luncheon formed the principal feature of the next halt, although the curious plan and quaint profile of the aforesaid garden houses, and particularly of that entitled "Diana, her House," were sketched and measured, whilst two or three members of the party strolled across the park for a nearer view of Amesbury House, originally built from the designs of Inigo Jones or his son-in-law, Webb, but much altered in the present century, and unvisited in consideration of the owner's domestic affliction. Amesbury itself possesses interest chiefly historical, being the probable location of the choir or sanctuary of Aurelius Ambrosius, the primal monastery of Britain in the sixth century, and the legendary scene of the retirement of Queen Guinevere. Certainly from the foundation of a Benedictine nunnery in 980 A.D. by Queen Elfrida, Amesbury long continued a favourite place of retirement for royal and patrician ladies seeking the refuge of the cloister. Local tradition asserts that beneath the present Amesbury House are underground passages and other remnants of the old nunnery, which was converted from monastic regime to a private residence by the Protector Somerset, Earl of Hertford.

Returning towards Salisbury, the party made a detour to Wilton, the last official halting-place on the day's programme. This town, which derives its name from the small river Wylye, which here joins the Nadder, and on which it is situated, is of great antiquity, and is supposed to have been the Caer Guilo, or capital of the British Prince Caroilius, and

subsequently the seat of the Kings of Wessex, possessing a monastery of high repute, and a mint, and giving the name to the county of Wiltshire.

Wilton is stated by Camden and other writers to have been originally called Ellandune, and to have been the scene of a sanguinary battle, fought in 823, between Egbert, King of the West Saxons, and Beornwulf, the Mercian King, in which the latter was defeated; but later writers have controverted this opinion, and the battle is now supposed to have been fought at a place called Ellendune, situated near Amesbury. An engagement took place here, in 871, between King Alfred and the Danes, in which the latter, though ultimately successful, were obliged to sue for peace. The celebrated monastery was commenced in the year 800 by Wulstan, Earl of Wiltshire, who, having defeated Ethelmund, the Mercian king, founded a chantry, or oratory, and repaired the old church of St. Mary at Wilton, which had been destroyed by the Danes, and placed in it a college of secular priests, to pray for his own soul and that of the martyr Alquimund, who, returning from banishment, was slain by command of the usurper Eardulf. About thirty years after Earl Wulstan's death, his widow Ethelburga, sister to King Egbert, induced that monarch to convert the oratory into a priory for thirteen sisters, of which she was the first prioress, and hence Egbert has been commonly reputed its founder. Immediately on granting peace to the Danes, King Alfred, at the solicitation of his queen, Ealswitha, built a nunnery on the site of the palace, and transferred to it the thirteen sisters of the priory, adding to them an abbess and twelve nuns; his successors were great benefactors to this establishment, particularly Edgar, who enlarged its buildings and augmented its revenue; his natural daughter Editha, having been abbess, and, after her death, being canonized, became its patron saint. Editha, daughter of Earl Godwin, and queen of Edward the Confessor, who was educated in this nunnery, rebuilt it in a magnificent manner with stone, it having been originally constructed of wood; and Matilda, queen of Henry I., was also educated in it, under her aunt, the Abbess Christina. Early in the tenth century, Wilton is wrongly said to have been the seat of the diocese of Wiltshire, which was established at Ramsbury, and continued during the lives of eleven successive bishops, the last of whom, Hermannus, having been also appointed to the see of Sherborne, united the two bishoprics, and removed to Old Sarum, where he founded a cathedral, which continued the seat of the see until its transfer, in 1217, to Salisbury. After the Conquest the town continued to flourish until the year 1143, when King Stephen took possession of it, intending to convert the nunnery into a place of defence; but being surprised by Robert Earl of Gloucester, with the troops of the Empress Matilda, who set fire to the town on all sides, the king was obliged to flee, leaving behind him his troops and baggage. Wilton recovered from this disaster; but in the succeeding reign it began to decline in consequence of the foundation of New Sarum, or Salisbury, and the change in the direction of the great western road, which quickly followed. Its monastic institution, however, continued of importance until the Dissolution, when it was granted to Sir William Herbert, afterwards Earl of Pembroke, its revenue being at that time estimated at upwards of 600*l*. A house of Black Friars and two hospitals, dedicated to St. Mary Magdalene and St. John, also existed here at the period of the Dissolution. The only historical circumstances connected with this place, in later times are its having been visited by Queen Elizabeth in 1579, and the residence of the Court for a short time in 1603.

The chief architectural attraction in Wilton is Wilton House, which occupies the site of the monastery; that at the Dissolution was granted by Henry VIII. to Sir William Herbert, first Earl of Pembroke. Holbein, Inigo Jones, his son-in-law, Webb, Solomon de Caus, Sir William Chambers, and James Wyatt are names associated with the design of the building, its garden-houses and Palladian bridge. Externally, the river front, the bridge, entrance gateway, and garden-houses having escaped the hands of Wyatt, are most admirable. Internally, the magnificent collection of pictures, especially those by Vandyck and the unduly famed Pembroke marbles, collected about 1678 by Thomas, eighth Earl of Pembroke, are the most notable sights. These were hardly fully appreciated as the visitors were hurried through in typical tripper fashion, but ample recompense was afforded by the enjoyable study permitted of the exterior.

The church erected in the town from the designs of Mr. T. H. Wyatt in 1844, with its magnificence and splendour of internal treatment and adornment, were visited as well as the ruins of the ancient parish church, but these latter, being completely covered with ivy, are of more interest to the sentimental tripper than the architectural student.

On the return to Salisbury an unauthorised halt was made by some of the party at the tiny church of Bemerton, sanctified by the memory of George Herbert, who here lived and worked till his death in 1632.

Thursday.

A long railway journey into Dorsetshire, and the normal want of punctuality in the railway systems south of the Thames, made it late in the morning when the first item on the day's programme was reached. This was Hanford House, charmingly situated near the banks of the Stour, amidst magnificent timber, and approached by a stately avenue. The date of the house is given us by an inscription on the staircase, "Robertus Seymer Mills, hanc dom re-aedif, MDCIV," whilst the rain-water heads on the entrance front bear the date 1623. Between these, therefore, we may place the period of building. The house was built around a central courtyard, possibly open to the front in 1604, and enclosed by the present entrance façade in 1623. This courtyard has been in modern times covered by a glazed roof and panelled, and a fireplace inserted, under Mr. Fred Chancellor, and an admirably comfortable modern country house is thus formed with the former courtyard as the great central hall. The visitors were kindly received and hospitably entertained by the present tenant, Mrs. Livingstone Learmonth, and fully enjoyed their study of the interior, particularly the staircase, and, sheltered by the trees, also of the exterior, with its three-gabled entrance front and four-gabled flank façade. The rear, or garden front, has been much doctored, but the formal garden is delightful and received its due share of admiration. In the park is a small church, erected in 1650, but this has suffered much from the generosity of former squires. A fine barn of ancient date has been turned into stables, and very Gothic openings made for doors and windows.

A beautiful drive, which even the tropical heat could not prevent from being enjoyable, brought the party to Bryanston House, the magnificent mansion erected for Lord Portman from the designs of Mr. Norman Shaw, and illustrated in the *Builder* last week.

The great size of the mansion is hardly realised from an illustration, nor is it fully grasped until at some distance; but an idea may be obtained from the fact that the main corridor which is parallel to the two façades shown in our illustrations is 100 yds. long. The scale of the building is Titanic and is maintained with strict persistency throughout; thus the impression of size is not easily obtained. The visitors were received by Lord Portman and by him conducted over the whole house, the chief feature of the interior of which is the central hall treated in cool, grey Hopton Wood stone, and top-lighted from a domed ceiling. The members lunched with Lord Portman, and then walked through the park and the gardens to the site of the old house, built in 1780 from a design by James Wyatt, and to the church recently erected close by from the designs of Mr. E. Prioleau Warren, a delightful example of modern ecclesiastical design, in which originality rather than archæological correctness of detail is the aim of the architect.

At the church the carriages were met, and the excursionists drove on through the park to Blandford. The loss of time in the early part of the day had thrown the time-table out of order, so that only a short stay could be made in the ancient town of Blandford Forum, which, though as far as position is concerned of at least Roman antiquity, being called then Trajectus Balaniensis, has repeatedly suffered from fire, and contains now very little work older than the eighteenth century. It was nearly destroyed by an accidental fire, in 1579, but was soon afterwards rebuilt. During the Civil War in the reign of Charles I., it suffered severely for its loyalty to that monarch. In 1664 it was plundered by the Parliamentarian forces under Major Sydenham, and, not being fortified, became an easy prey to the contending parties, by each of whom it was frequently assailed and alternately possessed. In 1667 and in 1713 it again suffered greatly from fire, and, in 1731, was, with the exception of forty houses only, consumed by a conflagration, which destroyed also the hamlet of Blandford St. Mary and Bryanston, in which only three dwellings were left. After this calamity, which is recorded on a marble tablet over a pump near the church, it was rebuilt by Act of Parliament in 1732.

The excursionists were met by Dr. Daniels, who hurriedly showed them the remains of St. Leonard's Chapel, with its Perpendicular doorway and windows; and the remains of Damory Court, which, in the reign of Edward II., was the residence of Roger d'Amorie, Constable of Corfe Castle. Thence up Damory-street, to what is now called the Old House, the former residence of a German doctor, by name Sagittary, and dating back before the fire of 1731, apparently to the seventeenth century. Its quaint appearance, high-pitched roof, peculiar hexagonal colonnetted chimneys, and excellent staircase brought out the sketch-books in spite of the pressure of time. The house is now the property and residence of Mr. Masters, an architect. Dr. Daniels then took the party to his own house, one of the eighteenth century examples of which the town mainly consists, and gave them tea, after which he guided them to the station for their return railway journey.

Friday.

Another railway journey and consequently another half hour behind time to commence the day was once more the experience when the excursionists reached Cranborne, a small market-town of great antiquity, whose name may be derived from *gren*, a crane, and *burn*, a river, in allusion to the cranes that frequented the banks of a little stream flowing through it to the Stour. In 980 Ailward de Meaux founded here a Benedictine monastery, dedicated to St. Bartholomew; but in 1102 the abbot retired with his brethren to Tewkesbury, where Robert Fitz-Hamon had founded a magnificent abbey, to which the original establishment became a cell. The old manor house, from having been embattled, was called the castle, and was the occasional residence of King James I., when he came to hunt in Cranborne Chase, an extensive tract reaching almost to Salisbury. The chase courts were regularly held in it, and a small room is shown, called the dungeon, for the confinement of offenders against the chase laws. This was used to quite recent times for the temporary restraint of prisoners till magisterial trial. The manor house, illustrations of the north and south front of which we gave last week, was first visited, and the party were received by Mr. Somes, the present occupant, and shown over the house. The interior has been much dressed up in pseudo seventeenth-century fitments, cleverly mixed with genuine old work, and therefore requires discrimination in the selection of subjects for sketching. The house was probably built in the reign of Henry VIII., with some simulation of older work, and was added to by Robert Cecil, first Earl of Salisbury, in the time of James I., and again by Inigo Jones.

Some few of the party visited the church—one of the largest in the county of Dorset—with a fine western tower (date about 1440) of excellent proportion, with graceful angle buttresses, a large amount of plain wall surface, and comparatively small belfry window, which taken together form an admirable design, losing nothing but rather gaining from the random mixture of material—limestone, ironstone, and flint—of which the walls are constructed. The body of the church is unpretentious in detail, an Early English archway in the north porch and a Norman doorway into the church from the porch having evidently been rebuilt into later work. The chancel has been rebuilt in Early English style in the present century, a founder's tomb being preserved in the north wall. An interesting object in the church is a fifteenth century carved oak pulpit, circular on plan. There are in the north and south aisle good seventeenth century tombs bearing the arms of the Hoopers, a tablet ascribed "Johanni Hawles Armigero," dated 1571, and other monuments. A curiosity is the mortice on a pier of the south aisle that evidently once held a crucifix with figures on

each side of St. Mary and St. John, probably of metal.

From Cranborne a long drive through the Valley of the Avon, on the return journey, brought the party at length to Longford Castle, the oldest existing part of which is the work, erected between 1578 and 1591, from the designs of John Thorpe, on a triangular plan, with circular towers at each angle and a central courtyard. Records, however, exist of a much older manor house or houses dating back to 1166, and the home successively of the families of de Waleran, de Longford, Plugenett, de Bohun, de la Bere, and Servington, after which it passed into the hands of Sir Thomas Gorges, who married Lady Northampton (widow of Sir William Parr and sister-in-law of Catherine Parr), and who employed John Thorpe. The house then erected was much damaged by the Parliamentarians, but restored by the Lords Colerane in the seventeenth century. Jacob, second Earl of Radnor, who owned Longford from 1776 to 1828, started on a radical modification of John Thorpe's plan, intending its rebuilding with six round towers instead of three. Between 1870 and 1874 the late Earl of Radnor employed Mr. Salvin to complete the work commenced by the second Earl, when the central court was covered and the building brought to its present form. The house contains a remarkable collection of pictures, commenced by Jacob, first Viscount Folkestone, who, between 1736 and 1761, bought over one hundred pictures and other sumptuous adornments for the house. He was succeeded by William, first Earl of Radnor, who added some seventy-five pictures to the collection, still further increased by more than eighty additional pictures by the second Earl. He bought also the remarkable Imperial steel chair originally presented to the Emperor Rudolphus II. by the town of Augsburg in 1572. A formal garden which once existed at Longford was swept away by "Capability" Brown, whose own work was cleared out and the present formal garden instituted under the superintendence of the third earl's second wife, Judith Anne Mildmay, grandmother of the present peer. This, with its box arcade, its semi-circular end, classical figures, and old-fashioned flowers, received its share of the excursionists' attention, after which a return was made to Salisbury, where in the evening the usual final festivities took place.

Saturday.

Meeting at the western entrance of the Cathedral, a perambulation of the building was made and the cloisters and Bishop's garden visited; then, under the guidance of Mr. Doran Webb, some of the houses in the close were inspected, and a visit made to the Joiners' Hall and the Trinity Almshouses. After luncheon, the Church of St. Thomas of Canterbury was inspected. This, founded by Bishop Bingham in 1240, rebuilt in the fifteenth century, and restored by Mr. Street in 1868, is an admirable example of a large Perpendicular town church, full of interesting work, not forgetting the Renaissance reredos and beautiful iron gates, now placed at the end of the south chancel aisle, and a fine ante-pendium in the vestry. Thence some few of those remaining returned to the Close and visited the Training College, originally built at the end of the fourteenth century, in which Richard III. is said to have stayed, as well as other Royal personages. Thus ended a very enjoyable week, marked by exceptionally fine and hot weather, and with but one thunderstorm—and that at night—to keep up the tradition, almost unbroken, that rain always comes in the week of the annual excursion of the Architectural Association.

HEALTH EXHIBITION AT LINCOLN.

Exhibitions are the order of the day, and "health exhibitions" will soon be as common as bazaars. The success of those held by the Sanitary Institute has apparently provoked the flattering imitation of the Sanitary Inspectors' Association, but the Institute has no immediate need to fear that its laurels are in danger of passing to another brow, for the Association's exhibition, good though it is, contains only about one-third the number of exhibits which appeared at the Institute's show at Birmingham in September last. Doubless one cause of the paucity of the applications for space at Lincoln is that no medals or certificates were offered. Had these tempting baits been exposed, it is probable that the number of exhibitors would have been doubled.

The first stand is occupied by Messrs. Doulton & Co., Limited, of Lambeth, and contains some excellent specimens of their well-known pottery, besides exhibits of a more practical nature. A prominent object is a white enamelled mortuary slab, semi-circular at one end and square at the other, measuring 6 ft. by 2 ft. by 6 in.; it has a raised rim, and central and diagonal grooves for conducting moisture to the outlet at one end. Illustrations are also shown of a new post-mortem table, having a slate top swivelled at the centre on a cast-iron leg branching into a tripod at the bottom; the drainage from the slab passes through a central hole, down the leg of the table to a drain in the floor below. A new lavatory is shown with the overflow in one piece with the basin. The overflow is immediately behind the bowl, the special features being its large size and its termination with a 3½-in. loose horizontal grate, so that it can be easily kept clean with a brush. The vitreous-enamelled iron baths are also worthy of mention; they are fitted with glass-enamelled iron traps, and the overflows are of the standing waste type hung on hooks at the top, so that they can be easily detached for cleaning. Among the other exhibits are two sets of urinals and several water-closets, sinks, &c.

Messrs. Twyfords, Limited, at stand No. 12, have an excellent show. The most prominent object is a white-glazed range of three wash-tubs in one piece, measuring 6 ft. 7 in. by 2 ft. by 1 ft. 9 in. The depth inside at the front is 12½ in., and the back is raised about 6 in. higher; each of the three compartments is fitted with a 2-in. india-rubber plug, and with taps for hot and cold water. The range is raised on two white-glazed pedestals, and is a splendid example of the potter's skill. The "Surgical" lavatory is another novelty; it is in white-glazed fire-clay, with detachable standing overflow and waste, and the waste and taps are actuated by treadles. In the left-hand back corner of the slab there is a small bowl for the antiseptic solution, fitted with nickel chain and plug. A good joint for the outgo of a water-closet is also shown; it is known as the "screw cone detachable joint," and consists of a brass collar (thoroughly secured at the works to the earthenware outgo of the closet), a loose brass ferrule (to which the lead soil-pipe can be secured by means of a wiped joint), and a screwed brass ring, after the manner of a cap and lining joint; the advantage of the arrangement is that the closet can be removed by simply loosing the screwed ring. Large porcelain-enamelled baths are also shown, some being glazed outside in buff or white. Among the other exhibits are water-closets, slop-sinks, kitchen sinks, &c. Messrs. Twyfords guarantee that all their fireclay goods are glazed with leadless glazes which are non-absorbent, non-crazing, and proof against acids and hot sea-water; lead glazes are, however, still used for their earthenware goods.

Messrs. Oates & Green, Limited (Stand No. 11), have a large exhibit. We noticed a new drain pipe joint which has the merit of simplicity. It is an ordinary socket-joint with a raised rim on the outer portion of the lower half of the socket; this rim receives the weight of the spigot-pipe, and is of such a size as to give an exact alignment of the inverts of the various pipes, a result difficult to obtain with the ordinary joint, as the spigot-pipe often squeezes the soft cement in the socket, and the invert of the spigot-pipe sinks therefore a little below the invert of the socket-pipe, forming a slight obstruction to the flow of the sewage. Some excellent salt-glazed urinals are exhibited, as well as waste-water closets, latrines, wash-tubs, and lavatories. A 36-in. earthenware drain pipe is a prominent object at one corner of the stand.

At Messrs. Jos. Brooke & Sons' stand (No. 8) the only novelty we notice is the patent "Duplex" joint, applied to circular drain pipes and to pipes circular in the upper part and with a V-shaped lower part. Pipes of the latter kind are formed with continuous bases to ensure firm support and true alignment. The pipes are apparently of thicker substance than usual, and near the spigot end a sunk chase is formed around the pipe, leaving a rim around the end. The lower half of the socket is extended outwards, and a groove is formed in this corresponding with the chase in the pipe. The space thus formed around the lower half of the joint can be run with cement, and the upper half of the joint can be pointed in the usual way. The "Grip" wall-tile is worthy of its name; and among the other exhibits are glazed bricks, sinks, and lavatories.

The Hard York Patent Stone Company exhibits specimens of its "Non-slip" paving, steps, &c.; and at stand No. 13 Mr. J. F. Ebner shows pieces of oak-block flooring laid on his patent "Hydrofuge" system, and samples of plain and ornamental marble terrazzo and marble mosaic paving of excellent quality.

Messrs. Guest & Chrimes, of Rotherham (stand No. 39), have a large exhibit of well-finished taps, valves, water-meters, and other fittings for water-supply, fire-extinction, gas, &c.

Sewage purification is represented by two firms—the Natural Purification Company and the Septic Tank Syndicate. The former exhibits a large drawing and working model of its tank and filters, the tank being circular and a modification of the Dortmund type. Although this system is known as the "Natural," it is in part a chemical process, alumino-ferric being employed to precipitate the solids of the sewage in the tank. The system is working satisfactorily at a hunting establishment belonging to the Duke of Rutland, and at several villages and small towns.

The Septic Tank Syndicate, of Exeter, shows a working model of the septic tank with four filters, but as this apparatus has been described in these columns on several occasions, we need not enter into details now. A full-size set of gear with pounding arrangement for filling the filters rapidly is also exhibited, and is specially adapted for country houses.

The Reeves apparatus for purifying the air of sewers is shown at stand No. 18, and merits description. The apparatus is designed for fixing in manholes, and consists of two cylindrical chambers, the one containing a solution of "Reevozone" (manganate of soda) and the other an acid; the two liquids drop on to a drip-mixing tray, below which are a group of "cooling pots." The operation of the apparatus is thus described:—"The mixing of the two chemicals causes a reaction in which nascent oxygen or ozone is liberated, the resulting liquid being a permanganic solution. This solution splashes upon the tops of the cooling pots, and is then broken up into a mist by a fine spray of water [from a nozzle provided for the purpose]. The manhole is thus always filled with a strongly oxidising vaporous atmosphere, which effectually purifies and deodorises any upward flow of foul gases, the cooling pots checking the upward flow sufficiently to enable this to be done, even when the upward current is strong." Of course, in many cases the "oxidising vaporous atmosphere" is drawn down into the sewers, and purifies the air in them as well as that in the manholes. The system is now at work in several places, the most important installation being in connexion with a foul sewer between Leith and Edinburgh.

Models of refuse-destructors are shown by the Horsfall Furnace Syndicate (stand No. 3), and by Messrs. Goddard, Massey, & Warner (stand No. 54), the apparatus of the latter firm being the simpler and cheaper of the two, but both giving good results. Messrs. Goddard, Massey, & Warner also exhibit a model of their "Perfectus" crematory for burning mattresses, bedding, poultices, bandages, and other hospital refuse, and a self-contained steam disinfecting apparatus on wheels. In this a pressure of 20 to 25 lbs. can be obtained, and a heat of 260° Fahr.; but, of course, an apparatus enclosed in brickwork is better and more economical. The "Westminster" double-trapped street gully is also shown at stand No. 54, and consists of a double trap in cast iron (with handholes for access to the trap and drain), made for use in connexion with catch-pits of cast iron, earthenware, or brick.

Disinfectants are, as usual, largely represented, but we need only mention Wade's "Government" disinfector. This is a clever little apparatus for placing in water-closet cisterns and flush-tanks. It consists of a small box containing the disinfectant (usually crystals of permanganate of potash), the top of the box forming a shallow tray from which a tube leads down into the disinfectant. From the top of the box an air tube is carried up about an inch and then turned horizontally over the top of the box, and finally bent down the side of the box to within about an inch of the bottom. When the tank is emptied, a small

quantity of water is retained in the tray, and when the pressure on the air pipe is relieved, this water flows down into the disinfectant, only to be forced upward (charged with the disinfectant) as the water rises again in the cistern. It is an exceedingly simple apparatus, and can be recharged in a few minutes at a very slight cost.

Messrs. Stanley Bros., of Nuneaton, show their granite-enamelled bricks and other ware, the mottled colour having a good effect. At stand No. 20 is a stack of good Jarrah planks, some polished, shown by the Jarrahdale Jarrah Forests and Railways, Limited. Messrs. Peter Spence and Sons exhibit samples of their sewage-precipitant known as "alumino-ferric," together with sewage-sludge, sewage-effluents, &c. Messrs. Burroughs, Wellcome, & Co., exhibit a number of their "soloid" compressed chemical substances, as well as a hand-case arranged to contain chemicals and apparatus required for the analysis of water, and designed to be used in accordance with the instructions contained in "A Simple Method of Water-analysis," by Dr. Thresh. The Kolawitch Company, Limited, has a stand containing tins of "Kolawitch," which is a coarse, peach-coloured powder, claimed to be "a great coal-economiser" as well as a preventive of smoke and soot and a consumer of "sulphuric gases." A pennyworth dissolved in half a gallon of water is said to be sufficient for sprinkling 1 cwt. of coals. We have tried the preparation, but the result was not all that we were led to expect.

Messrs. Lockerbie & Wilkinson, Limited, of Birmingham, at stand No. 45, show their abattoir fittings, the special feature of which is the switch arrangement, easily operated by a cord, and returning automatically to its original position when the cord is released. Their pulleys for sliding doors and partitions are excellent; they consist of a vertical spindle passing through a short horizontal bar, at each end of which is a pulley with ball-bearings; for partitions the spindle also is provided with ball-bearings; the pulleys run in a circular tube, having a longitudinal slit on the lower side to admit the passage of the spindle. The apparatus works with remarkable ease.

At stands 51 A and 51 B Messrs. Jas. Stott & Co., of Oldham, exhibit their well-known gas-governors, and by means of groups of gas-fittings and gas-containers demonstrate the advantages in steadiness of light and consumption of gas accruing from the use of the governors. They also show fans for driving by steam-power and electricity, and a new water-driven fan, which has many advantages. On the periphery of the fan are a series of small buckets, the periphery being hidden in a cast-iron case. The water enters the case a little above the central horizontal line, and issues into the waste-pipe after making about one-third of the circuit of the case. In other words, the fan is an undershot water-wheel; it is as noiseless as any other fan, and there is no splashing. We do not know what is the efficacy of the fan with a given quantity and pressure of water, but it is clear that in many cases a water-driven fan will be much more convenient than any other sort, and an attempt is being made to adapt it to the ventilation of sewers. At the same stand the "Ballantyne-Stott" patent instantaneous and silent water-heater is shown, 200 of which are in use at the Manchester Workhouse. It is intended for warming water for baths, laundries, &c., and is made in sizes from ½ in. upwards. The principal feature of the apparatus is a small cylindrical chamber filled with gravel, into which the cold water and the steam are turned, and from which the hot water passes by a pipe to the point required.

In the matter of warming and cooking we may mention the gas-stoves of John Wright & Co., Birmingham; Fletcher, Russell, & Co., Warrington; and Wilson & Mathieson, Leeds; and the "Dowsing Luminous Electric Radiator," shown by the National Electric Wiring Company. The special novelty in this radiator is that it is luminous. Those exhibited consist of four incandescent lamps with a copper radiator behind, zigzag in horizontal section, each lamp being placed opposite a salient angle. The lamp-glasses are of frosted glass, and are not globular in form, but cylindrical, with a length equal to about four diameters. The effect of the radiators is extremely pleasant, and the glasses become so hot that cigarettes can be lighted at them. We are not aware of the results of any tests as to the heating power and durability of these radiators having been made known, and, in the absence of these, we cannot pass judgment on the value of the invention.

Among the remaining exhibits we may mention those of W. H. Horne, Bradford (fibrous plaster, &c.); Scott & Nicholson, Lincoln (some excellent stencilled jute and canvas, &c.); Charles Duckering, Lincoln (sanitary ironwork, fire-ranges, &c.); the Bennet Furnishing Company (school desks, &c.); the Willesden Paper and Canvas Works, Limited; W. Glover & Sons, Warwick (patent tipping van, watering van, and road-sweeping machine); and J. Defries & Sons, Limited (Pasteur-Chamberland filters, Scurfield's ventilation indicator, disinfecting appliances, &c.). Mention may also be made of Mr. W. G. Watkins's design for a public mortuary, based on the suggestions of Dr. Carline, of Lincoln. The special feature is in the underground rooms, consisting of a refrigerating chamber and cold stores for corpses, Dr. Carline's desire being to do away with the present practice of keeping bodies in private houses between death and burial. It is a laudable desire, but we fear that sentiment is still too strongly in favour of the practice to allow much chance for the suggested improvement to be carried out.

THE ROYAL ARCHÆOLOGICAL INSTITUTE AT IPSWICH:

CONCLUDING NOTICE.

ON Monday, July 31, the archæologists went by special train to Clare. Passing through the series of earthworks belonging to the castle, which surround the railway-station, the party proceeded first to the monastery of the Austin Friars. Mr. Hope explained that this was founded by Richard de Clare, Earl of Hertford (*ob.* 1262), to whom is attributed the bringing over of the Order of Friars to which it belonged. The first buildings could only have been of a temporary character, inasmuch as the church was not built until after the founder's death, by his widow, to which his son's wife, the Lady Joan of Acre, added the chapel of St. Vincent. Her daughter Elizabeth, Lady de Clare, built the dorter, chapter-house, and frater, and died in 1360. The granddaughter of this lady, Elizabeth de Burgh, Countess of Ulster, married Lionel of Antwerp, son of Edward III., created Duke of Clarence 1362, both of whom were buried here. The existing remains of the monastery include the south wall of the church, the cloister, with the doorways into the chapter-house, frater, &c., the western range of buildings (now the residence of Mr. and Mrs. Gunston), and a detached two-storied building on the south-east. Mr. Hope explained that the preservation of so much was no doubt due to the monastery being built outside the town, instead of inside as was more usually the case with friars' houses. A move was next made to the Castle. Notwithstanding the heat, the majority of the party ascended to the top of the great mound, where Mr. Hope gave a description of the earthworks. This castle, he said, belonged to the type which Mr. G. T. Clark had called "burhs," consisting of a great conical mound, on which stood the keep, with attached courts, enclosed by mounds and ditches fortified by palisades. One of these courts at Clare was now occupied by the station yard, the other lay between it and the town. The mound here was 100 ft. high and 250 ft. in diameter, and was nearly, if not quite, as large as the well-known example at Thetford. Unfortunately, the trees that have been allowed to grow upon it effectually obscure its bulk. Such earthworks, Mr. Hope said, had been claimed by Mr. Clark as of Anglian date, but the question had lately been raised by Mr. J. H. Round, on historical grounds, whether many of them were not Norman. At the time of the Domesday Survey, Clare was held by Richard FitzGilbert (ob. 1090), who was also known as "de Clare" and "de Tonbridge," and although the castle is not mentioned, Mr. Hope said it was, at any rate, a remarkable coincidence that, as pointed out by Mr. Round, both at Clare and Tonbridge earthworks of similar plan and on the same great scale should exist, and it was quite possible that Richard FitzGilbert was the builder of both. The few remains of masonry at Clare Castle seem to be of the fourteenth century.

Clare Church, which was next visited, was described by Mr. Micklethwaite, who pointed out the chief features of interest. The church was for the most part, he said, all of one date, the latter end of the fifteenth century, with a fine thirteenth-century tower, with later windows inserted. This tower had lately been pronounced in so dangerous a condition as to necessitate its rebuilding, but through the intervention of the Society for the Protection of Ancient Buildings, it had been placed in the hands of Mr. Detmar Blow, under whose direction the whole of the rubble core had been taken out and replaced piecemeal, with new cement, without any interference with the external facing. The tower was now stronger than it had ever been before, it retained all its ancient features untouched, and Mr. Micklethwaite had the assurance to add that the same process which had been carried out here with the greatest success, could have been applied with equal ease to the west front of Peterborough, had the Dean and Chapter allowed it. Of the reasonableness of such a statement most of our readers are pretty well able to judge for themselves. Mr. Blow also explained, in detail, how the work had been done, and Dr. Cox described the church plate. After luncheon the special train was again in readiness to convey the party to Long Melford. Here a drive was made up the long street of over a mile, which gives its epithet to the village, and through a charming avenue of limes to Kentwell Hall. This was described by Mr. J. S. Corder as a good example of a moated Elizabethan mansion, forming three sides of a quadrangle, and built by Thomas Clopton, who died in 1597. Except for the perfect condition of the brickwork externally, the house is not in any way remarkable, and the interior fittings are hopelessly modern. As in the case of Seckford Hall, what should have been stone dressings are of brick plastered over. A return drive down the avenue brought the party to Long Melford Church. The principal features of this well-known building were described by Mr. Micklethwaite, who called special attention to the unique Lady Chapel and the little Clopton Chapel to the north of the chancel. Mr. E. W. Brabrook, C.B., F.S.A., referring to the ancient painted glass now preserved in the east and west windows, pointed out the figures therein of two or three sergeants-at-law in their parti-coloured robes. The rector, the Rev. G. S. J. Topham, also contributed some descriptive remarks. The simple eighteenth-century brick tower of the church is now being cased in imitation of a fifteenth century tower by Mr. Bodley. It cannot be said that there is any originality in the design, and the cast-iron exactness of the new work contrasts painfully with the charming irregularities of old work. It seems unfortunate, too, that the brick tower should disappear from view. After a full examination of the church, the party once more drove down "Long" Melford and returned to Ipswich by the special train.

In the evening the concluding meeting was held, under the presidency of Sir Henry Howorth, when votes of thanks were passed to the Mayor and Corporation, the Presidents of Sections, and to all those who had contributed to the success of the Ipswich meeting.

Tuesday, the last day of the meeting, was given up to a visit to Hadleigh, Giffard's Hall, and Little Wenham Hall and Church.

Leaving Ipswich in carriages at 9.45 a.m., the party arrived in due course at Hadleigh, where, in the unavoidable absence of the rector, the Very Rev. R. M. Blakiston, F.S.A., Dean of Bocking, the church was described by the Rev. Dr. Cox, who called attention to the chief features of interest, and the lead-plated spire, which, he said, recalled that of Chesterfield, Derbyshire, except that it was not crooked. The picturesque brick gatehouse, now the Deanery, was next examined, and declared by Dr. Cox to have been built in 1495. The picturesque half-timbered Guildhall, adjoining the churchyard, was also inspected.

After luncheon the carriages were again entered and the journey resumed for Giffard's Hall. Unfortunately the drivers were ignorant of the way, and an hour's valuable time was lost before the right road was found. Giffard's Hall, where Mr. and Mrs. J. W. Brittain received the visitors, is a quadrangular half-timbered house of the reign of Henry VIII., but it has sustained much modern "restoration," and the only redeeming feature is the picturesque gatehouse, which retains its original doors, carved with the linen-napkin pattern. Little Wenham Hall, which was next reached, was quite one of the "plums" of the meeting, it not being one's good fortune every day to see an untouched thirteenth-century house. It

now consists of a vaulted basement, L-shaped in plan, with the hall and chapel on the first floor, and another room over the chapel which seems always to have been used as a pigeon-house. The arrangements of the hall and chapel can easily be made out, and the latter has a low side window on the north placed at such a height from the ground as to effectually negative the silly "confessional" theory. The kitchen and other offices seem to have been attached to the south-west corner of the hall, where the door from the screens remains. Little Wenham Church is an interesting structure of the same date as the hall, consisting of chancel, nave, and tower, but it is at present disused and in a sadly neglected state. A luxuriant growth of ivy has also caused the fall of part of the roof tiling and collapse of the plaster ceiling. There are several monuments of the fourteenth, fifteenth, and sixteenth centuries, each excellent in its way, as well as some good remains of painting on the east wall. There are also the base of a stone rood-screen, with the marks of the nave altars and their reredoses, and a number of the ancient pews. The deplorable state of so interesting a building, one, too, which could so easily be repaired and kept in order, called forth many strong comments from Sir Henry Howorth, Chancellor Ferguson, Sir Francis Boileau, and others, and a resolution was passed calling the attention of the vicar, the patron, and the bishop to the matter, and urging in respectful words that such an edifice should be maintained in decent repair. A pleasant drive to Ipswich brought the day's proceedings to a close.

The Ipswich meeting was a most successful one in every way, and as will be seen from the detailed account of the proceedings, a due proportion was maintained in the selection of places to be visited, so that the secular and domestic side was not sacrificed, as it might easily have been in Suffolk, to the ecclesiastical. The popularity of the meeting was shown by the large number of tickets, over 140, taken by members and their friends. The secretaries for the meeting, Mr. H. Longden and Mr. W. H. Knowles, F.S.A., deserve special thanks for the admirable way in which they carried out their duties.

MAGAZINES AND REVIEWS.

THE *Quarterly Review* contains a valuable and interesting article on "The Holy Sepulchre," evidently written by some one well acquainted with Jerusalem topography, and illustrated by three plans, drawn by Mr. Jeffery, the architect of the new English church at Jerusalem, showing the probable plans of the buildings on the site, first as built by Constantine, secondly the rebuilding by Modestus in the seventh century, and thirdly the buildings of the Crusaders. The main object of the article is to show that, while there can be no doubt that the present site of the Holy Sepulchre is identical with that recognised by Constantine, there is nothing to render it impossible that this site was really the true one. The main point of the argument turns on the question, what was the line of the "second wall" of Josephus, which was the outer wall of Jerusalem at the time of the crucifixion. No site for the sepulchre, which was undoubtedly "without the walls," can be accepted unless it is outside of the line of this "second wall" of Josephus, the course of which has never been positively ascertained. The writer of the article is disposed to accept the most recent investigations of Herr Schick, which place the line of the second wall so as to leave the sepulchre outside of it. Those who think (as we do) that the question of the actual site of the tomb is so involved with traditions which can never at this distance of time be checked or authenticated, that it is out of the domain of practical archæology, will nevertheless find the architectural history of the site, as sketched and illustrated in the article, of considerable interest.

The *Edinburgh Review* contains an article on "Some Aspects of Modern Art," which may be said to be practically a study of some diseased forms of art. We do not differ in the main from the conclusions of the writer, but he is certainly wrong in referring to Watts and Burne-Jones as the two greatest English painters of our times. Millais is our greatest modern painter, and will be recognised as such by posterity, both for his style and because he truly represented the life and the feeling of his own day, and not an artificial æstheticism. Nothing could be more characteristic of the contrast between him and Mr. Watts in this sense than their two portraits painted by themselves for the Uffizii Gallery, where Mr. Watts represented himself in a kind of imitation portrait of a Renaissance artist, while Millais was content with his own every-day likeness in an unpretentious suit of tweeds.

The article in the *Art Journal* to which most readers will at once turn is that entitled "Reminiscences of Millais," by Mr. Rudolph Lehmann. Unfortunately it is very short, though very charming as far as it goes. "Recent Losses in Old London," by Mr. Frank Rinder, gives an account and illustrations of some old London buildings that have disappeared lately. The article on the Paris Salons comes surely rather late, and one is somewhat surprised at the selection of illustrations, which assuredly represents none of the most interesting works of this year's Salons.

Fifty Years of Art includes an article on Landseer's works, with the old-fashioned tame engravings, and one on book-plates, which is interesting as showing the book-plate fashions of the period 1876-79. We have certainly improved in decorative treatment of book-plates in the last twenty years. The one of Manet the painter is characteristic; his own bust on a stele with, at the top, "MANET," and the foot "ET MANEBIT." It is well to have a good conceit of oneself, but we rather doubt the prophecy.

In the *Architectural Record* (New York) for the July quarter are some interesting extracts, under the title "History from a Garret," from an architectural publication of the earlier part of the century, throwing some light on American ideas about architecture at that time, and on the then construction of city buildings. Another article, by Professor Goodyear, is devoted to "Horizontal Curves in Columbia University," from which it appears that the architects of that building, Messrs. M'Kim, Mead, & White, have adopted in the lines of steps and cornice the Greek principle of curving the main horizontal lines of the building, though they appear to have overdone it, since the curves are visible to the eye, and were accounted for by one of the professors of the University as intended to throw off rain; they ought not, as curves of correction, to have been so obvious to the eye as to call forth such a remark. However, we should think this "modern instance" will at all events make Professor Goodyear happy. The principal articles are on "A Haunt of Teutonic Knights" (Marienburg), by Mr. Charles de Kay, and "Monastic Architecture in Russia," by Mr. C. A. Rich. The illustrations of "No. 4 Avenue, d'Jena," which form a feature in the number, seem to have been reproduced from very distorted photographs.

The *Architectural Review* (Boston), Vol. VI. No. 6, gives among its illustrations the elevations of the library for the New Britain Institute Connecticut, a sensible looking building designed under French influence both in general treatment and detail; and a travelling student's "Design for a Horticultural Building for Boston," which is an Ecole des Beaux-Arts design pure and simple, probably drawn at the French schools. "Details of the Cable Building, Chicago," forms a useful sheet of constructional details. The Attleborough Savings Bank (Mass.) is a rather amusing return to the Early Victorian theory of bank design—four classic columns and a pediment.

The *Studio* (July 15) contains an article on "Home Arts and Industries," giving illustrations of a good many samples of work done under the scheme of this Association for promoting home art work. Among them are some from the Yattendon class, mostly designed by Mrs. Waterhouse and Mr. Amyas Waterhouse and executed by natives of Yattendon. A series of prints of "character sketches" of women by Mr. Mortimer Menpes, originals of some of those that have been on view at Messrs. Dowdeswell's, strike us as very vulgar in feeling though clever and facile in drawing. The number includes two reproductions of drypoints by M. Helleu, and a very optimistic review of the collection of artistic curiosities at the so-called "International Exhibition" at South Kensington.

The *Artist* includes an essay on "Pele Towers and Border Castles," by Mr. Alexander Ansted, with a number of good sketches.

The Berliner Architekturwelt devotes its first article to an account of the recent competition for a kind of pillar monument on a great scale to the memory of Bismarck, with small illustrations of some of the designs. The one to which the premium has been awarded, by Herr W. Kreis, of Dresden, is rather a striking and weird conception, with a kind of Druidic grandeur about it. It is a great blind pile of masonry like a colossal altar, the angles being formed into cylindrical three-quarter towers carrying an immense cornice with a square mass of masonry over it; the whole on a widely-extended base of three stages. Set in the middle of a great bare plain (which would be its proper position) it would have a striking effect, and is certainly an original conception, and by far the best of those that are illustrated.

The *Deutsche Kunst und Dekoration*, which appears every month with a fresh designed wrapper, gets more and more astonishing, to the English mind, in the ugliness of the furniture and other designs illustrated, many of the details of which are enough to give one nightmare. It is difficult to realise that there is (as one must suppose) an artistic society which admires these things. The search after ugliness in modern German art could hardly be better symbolised than in Herr R. Müller's preposterous panel entitled "Adam and Eve"; two ugly angular nude models, looking like factory hands stripped, being made to do duty for the figures of our first parents. There is something almost revolting about such a picture.

The *Engineering Magazine* includes the second section of an essay by Mr. Rous-Marten on "English and American Locomotive Building," and one on "Short-distance Electric-power Distribution," by Mr. James Swinburne.

Amongst other excellent periodicals representing British engineering interests there has not hitherto been included a distinctly British engineering magazine. It is true that the omission has to an extent been supplied by the English editions of two well-known American publications, but such an arrangement could not be expected to exist in continuity. Neither could it be regarded as calculated to promote and to uphold British institutions and prestige in the most satisfactory manner possible. By the issue of the first number of *Feilden's Magazine* this month another indication has been given that we are gradually appreciating the fact that our industries must be fostered and our still pre-eminent position in the engineering world must be strengthened by our own efforts. The new magazine is avowedly British in tone, character, and purpose, and its objects will be directed towards cementing the ties of empire and the consolidation of trading interests between the colonies and the mother-country. Prominent amongst other articles is one by Sir William Preece, on the work and practical effects of this year's Engineering Conference. A series of articles on the Great Central Railway extension is, at the same time, commenced, and various engineering subjects are discussed.

The *Antiquary* contains an article on "Tournoël," by Miss Vansittart. The several series on "England's Oldest Handicrafts," "Notes on Kentish Churches," and "Quarterly Notes on Roman Britain," are continued.

The only fault to find with Mr. Bremner's article on "London Buildings" in the *Fortnightly Review* is in regard to its title, which is too comprehensive, as the article refers only to tenement houses for the working classes, and not to buildings generally. It is a very practical and sensible article, and should be read by all concerned with the promotion of buildings of this class. Among points to which the author specially calls notice is that of the small size of the rooms in many tenement houses, both in regard to area and height. It may be replied, of course, that this is a question of dividends, but to provide rooms too small for health or convenience is practically to ignore one of the principal reasons for the erection of artisan's dwellings—the provision of more healthy dwellings than those now existing.

"The great and almost universal defect seemed to me the size of the rooms. The living-room is often 12 ft. by 13 ft., and I have seen it less. Bedrooms are contemptible; the general run is 96 square feet, but in a tenement of 30*l.* rental, I carefully measured the only bedroom and found it was about 70 square feet. Almost all the companies have bigger living-rooms than the size given, often let as single rooms, and in the same building, but the average is miserably poor. These tiny roomlets are filled with gigantic furniture, which poor people pick up cheap. There seems to be a glut of this kind of furniture in the market, probably because the London builder keeps diminishing the size of rooms, especially in flats. Small bedrooms have huge beds

in them; and, generally speaking, locomotion in the rooms is difficult, and at times dangerous. Numbers of poor people observed to me, and I doubt not with truth, that two rooms in a good old-fashioned house are more convenient than three in a tenement, except for water supply."

This appears to apply even to tenements of a cottage class, erected out of London, and where there cannot be the same excuse of restriction of site as in London. Speaking of the "Artisans, Labourers, and General Dwellings Company," Mr. Bremner says:—

"I carefully looked over the Leigham Court Estate of this Company, near Streatham Hill, where it has built more for the middle than for the working classes; at least, the former are at present the majority of the tenants. The houses are chiefly double-storeyed cottages or villas, with a large proportion divided into two flats, lower and upper. All the sanitary arrangements are excellent, the streets clean and well laid out. But the rooms are so low and small that it is difficult not to reach the conclusion that it is not worth while journeying half an hour by train out of London when rooms the size of egg-boxes lie at the other end. Poor people often complain that their health suffers in London buildings through lack of light and air; will the results be different if light and air are excluded a few miles further out?"

In the *Nineteenth Century* Mr. C. Newton-Robinson writes the reflections of an expert on the "Marlborough Gems" and the recent sale. We may share his satisfaction in recording that most of the finest things in the collection have been retained in England, either for the British Museum or for private collections; but the most important suggestion is that with which the article concludes—the hope that the increased interest in this beautiful class of artistic work, which may be supposed to have been promoted by the public exhibition of such a collection, may result in a better remuneration for the very few English gem-engravers who preserve the traditions of the technique, so that they may be enabled to pursue their vocation as real artists, "and not as the employees of tradesmen, mere cutters of banal monograms and formal coats of arms." In the same magazine, under the title "The Decameron and its Villas," Mr. W. J. Stillman endeavours to identify the site of the villa at which the joyous company of Boccaccio's romance were gathered; an attempt hardly more practical, perhaps, than that which has been made to identify the island of Shakespeare's "Tempest."

The *Century* contains an article on some of "The Churches of Auvergne," by Mrs. Van Rensselaer, with sketches by Mr. Pennell; the plans and sections are, however, reproduced from Viollet-le-Duc. The same number contains an article on a means of protecting electric instalments from the action of lightning, to which we may return.

The *Pall Mall Magazine* includes an article on "A Dutch Barbizon"—Volendam is the name of the place; one on the Upper Thames and its picturesque attractions, under the title "A Poet's River," and one on "Selborne, the Home of Gilbert White"; in each case, of course, the illustrations are the main interest of the article.

The article on "Victims of Vanity" in the *English Illustrated* has some connexion with the subject of the last-named article, since it deals with the question of the slaughter of birds for dress ornaments, against which the Selborne Society (named after Gilbert White's home) has especially protested. An article on "Pests of the Wire" gives a rather amusing summary of the various animal and insect enemies which shorten the life of the telegraph wire and pole.

Scribner contains an article on "Japanese Flower Arrangement," in gardens and in bouquets, which is interesting. Under the "Field of Art" are some remarks on "Painters who would express themselves in words"—not very much to the point, as the painter's words often are not.

The *Essex Review* (quarterly) seems for the present to have done with old buildings, but has an illustrated article on "The Real Southend," that is, the old Southend, which was once a fashionable watering-place for persons in good society but of limited means, as we know from Jane Austen's *Emma*.

The *Property Gazetteer*, of which the first number has been sent to us, appears to be merely a collection of advertisements of properties for sale, bound up into magazine form.

Moring's Quarterly continues the illustrated article, commenced in a previous number, on 'Greek Terra-cotta Figurines." Other articles are "Seals and Signet Rings" and "An Early Renaissance Seal."

We have received also *Harper*, *Knowledge*, the *Gentleman's Magazine*, and the *Genealogical Magazine*.

DOMESTIC SANITATION.*

CONSIDERING that so much has already been said and written about domestic sanitation, that almost every aspect of the subject has been placed before the public in a literature ample and clear, that investigation and experiment have demonstrated beyond question that health can only be secured and maintained by clean and pure surroundings, it is astonishing that so many people who are generally well informed on most other subjects should negligently continue to live in a state injurious and even dangerous to themselves and their neighbours.

In unpaved backyards and badly laid and leaky drains, admitting of the saturation of the soil under and around their residences with polluted matter; open water-pipes from sinks and lavatories, fouled inside with greasy matter, admitting foul air to the interior of the houses to be breathed by the unfortunate inmates; ventilating pipes from sewage drains stopped up with the falling rust of ungalvanised cast metal; and unpaved pigstyes and ash-pits filled with putrefying matter, and manure pits in a worse condition, often within a few feet of the doors and windows of the house, we have a few, and only a few, of the predisposing causes of impaired health and chronic disease. And if we add to these the carefully stopped-up fireplaces and pasted-over ventilators of bed and sitting-rooms, and the ever-to-be-condemned "dead wells" or "sewage cesspools" so persistently provided for in the building by-laws of County and District Councils, and required by them to be constructed to every house and cottage within their jurisdiction where no system of public drainage exists, and we have a catalogue of the evils, the amelioration of which will tax the energies of the Sanitary Inspectors for many years to come.

How long it will yet require to convince the public of the evil consequences of surroundings such as these, or how often it may be necessary to remind them that the accumulation and stagnation of organic matter means decomposition and decay, that oxygen—the invigorating and life-sustaining property of the air we breathe—is consumed in that process, the purity of the air diminished, health lowered in tone and insidious disease contracted, it is hopeless to conjecture. For I am afraid it is the experience of sanitarians that it is not by the desire of the people—or at any rate of a large proportion of them—not even by their favour that sanitary improvements are effected, but sometimes rather in direct opposition to their wills, often only after much finessing bordering on subterfuge and occasionally only by hiding from view the very means by which their health is secured.

Even where good fortune has favoured the expert in permitting him to carry out a proper system of health preserving sanitation in a public or private building, the unskilled plumber or the untutored bricklayer will, with the consent of the thoughtless owner, in a short time disarrange many of the appliances. He will reconnect the severed waste-pipe, close the fresh air inlets and make new connexions in a clumsy way and in dangerous places, and when the evil consequences reveal themselves will endeavour to cover his misdoings by casting reflections on the original work. That is probably the experience of every architect who has made sanitation a branch of his professional studies.

But sanitation does not begin and end with drains, nor with the polluted soil under and around our houses, but extends, amongst other things, to the sanitary appliances with which buildings are fitted up. Of these, as is usual in such matters, the simplest and least complicated are the best, but to one not versed in the vagaries of manufacturers, their sale prices seem governed by the rule of contrariety—*i.e.*, the less the appliances cost in production the greater their cost to the consumer; for, if it is desired to get rid of some of the complications of the stereotyped manufactured articles by reducing the number and length of fittings, or by otherwise altering the models, even though the cost of production is reduced and the alteration prove an advantageous one to the producer by reason of an increased demand for the goods, the alteration is at once specialised and the price increased accordingly. This naturally retards improvements in the construction of these contrivances, and it is, therefore, to some of these appliances that I desire to direct attention.

Why it is the almost invariable practice to continue the large trumpet-mouth overflow outlets at the ends of the ordinary scullery sink, requiring, as they do, 3 ft. or 4 ft. of lead piping to connect them with the waste-pipes below, is a question that might well be asked, because the more ready way, and that which gives the best sanitary result, is to place the overflow high up at the back of the sink, and to pass it through the wall into the open air, with the outlet end capped with a simple but well-made copper flap, and projecting some 4 in. from the face of the wall. No reason exists why this end of the pipe should appear unsightly or objectionable, for it would be a poor plumber and a worse architect who could not design a lead boss to surround the pipe that would at once be sightly and convey the idea of fitness on the face of it. Several of these sinks are in use, and they fully meet all the requirements of the most fastidious sanitarian, and as they are simpler in construction, require less labour in modelling, are less liable to crack in burning, their initial cost should be rather reduced than increased. So also it is with the combination housemaids' sink, an article of great utility, and one that should find a place on the chamber floor of every fair size modern dwelling-house. It is an article constructed in two compartments, the one for the reception of slops, the other for washing up the utensils after they have been in use; but, as in the ordinary sink, its construction is unnecessarily complicated in having separate outlets for the waste where one only is necessary, thus increasing the surfaces for the reception of decomposing matter and involving extra fittings, more numerous junctions, and more costly modelling. The simpler arrangement is to pass the waste from the wash-up compartment through the slop bowl of the other with only one waste pipe for the two, and that one may be reduced to at least half its present size.

The majority of lavatory basins in the market are equally defective in construction, or their fittings are so carelessly arranged that they can neither be inspected nor cleaned. Even the best makers continue to place in the forefront of their illustrated catalogues diagrams of these basins indicating combinations of waste-pipes which afford the maximum amount of surface for the reception and retention of decomposing matter, with the least provision for the escape of the gases which must inevitably be generated in them. But the worst of all are those long ranges of lavatory basins which discharge their waste into enclosed horizontal pipes several inches in diameter, to the rough interiors of which the soap will adhere which, being fed by the oxygen contained in every discharge of water, decomposes and periodically throws off expansive and offensive gases that force their way through the traps below the basins, however well they may be sealed. Thousands of these ranges are already in use in our schools and public institutions; dozens are no doubt weekly added to their number, or they would not occupy so prominent a position in the manufacturers' catalogue as they do, and although these defects have been pointed out over and over again, the fact that these ranges are still made in large numbers is proof that the public purchase them.

The ordinary house-bath, too, which is happily becoming an indispensable necessity of every decent household, may equally claim attention as to its construction and fittings, for why it should be considered necessary to form the waste outlet at the bottom of the bath, involving as it does greater difficulty and more labour in fixing the waste pipes, secreting the traps, in positions that cannot be reached for repairs, and often necessitating the raising of the bath to an inconvenient height above the level of the room floor, or the cutting through the floor beneath, and sometimes the ceiling below it, is a mystery the manufacturers may be able to solve, but it is one the sanitarian can in no way understand. The experienced sanitarian will invariably arrange to place the foot of the bath as near the outer wall of the bath-

* A paper by Mr. W. Watkins, F.R.I.B.A., read before the Sanitary Inspectors' Association during the Conference of that body at Lincoln.

room as circumstances will permit, and it is but on rare occasions he is prevented from effecting this desirable purpose, and then it requires no great ingenuity or discernment to perceive at a glance that a straight outgo at the foot of the bath, slightly hollowed out for the reception of a good size well-pierced and hinged brass grid, is the most direct and ready way by which to discharge the water. A short straight waste pipe, passing directly through the outer wall and fitted with a simply contrived flap valve or other equally effective means for letting off the water, and having at the discharge end of the waste pipe a copper flap to prevent the air from passing through an unclean channel into the house, is an arrangement that obviates all the objections to the present system and at the same time affords facilities for passing a small flue brush through the waste pipe for periodical cleaning. This is no hypothetical arrangement, for it already exists and has been in work for some considerable time with most satisfactory results, and if we could but free ourselves from preconceived ideas, it is probable that much greater improvements may yet be made.

So it is with our water-closet, which is not the least important of the sanitary appliances in our houses, for whilst no article of domestic utility has received greater attention, or has undergone so many changes and improvements, during the last decade, there yet remain some practical details relating to its accompaniments and fittings that may fitly receive further consideration. It is an unfortunate rule of nearly all the water companies which precludes the adoption of a flushing cistern having a capacity of more that 2 gallons, for that quantity is not sufficient for cleansing the closet or flushing the house drains. It is more unfortunate still, for obvious reasons, that the plumber who fixes up these cisterns should persist (in spite of perpetual remonstrances to the contrary) in fitting them with ball-cocks so small that several minutes are occupied in filling them, and if a larger cock is insisted on the chances are that the plumber will attach it to the ordinary 3½ in. to 4 in. copper ball made for the smaller article which when fixed immediately proves its inability to close the cock against the high pressure of the water such as exists in the lower part of this city. Some of the manufacturers, however, have contrived closets which leave little to be desired, and we may well owe to them a debt of gratitude for the developments they have made in the closet basin in very recent times. Some of the wash-down examples are admirable specimens of cleanliness and design. But so important are the numerous and yet minute differences in the form and constructions of many of these basins, and so difficult of discernment are the merits and demerits of each of them, even by experts in such matters, that it is not surprising so many of the inferior class find places in our private residences, especially as the British public so dearly love a cheap bargain and readily accept the cheaper article regardless of its fitness or quality. But when all has been done that human ingenuity can devise in designing and arranging these appliances, and after every attention has been paid to the principles underlying the practical details of sanitation, how often has the sanitarian been mortified to find all his best efforts frustrated by the unskilled artisan! How frequently will the plumber fix a closet basin having an S trap where a P trap would be infinitely better and by which the danger of a joint in the soil pipe secreted in the thickness of the floor and the extra cost and labour of fitting would be avoided. Just as it is with the waste from the bath, so it is with that from the closet; the straight outgo through the outer wall is the simplest, the cleanest, and most reliable method of discharge, and the sooner that waste is out of the house the better it will be for the dwellers within.

Having reached that veritable mine of discord and vexation, the severed soil pipe, I hope I shall be forgiven for still evincing an irresistible desire to hear what the contending sections of the Conference may have to advance in favour of their respective views on this subject, for after a quarter of a century's practical experience of special advantages of the severed soil-pipe, and in the absence of all knowledge of any disadvantage or injury arising from it, I am at a loss to know what the real objections can possibly be. The most cogent of them that I have ever heard is the one of increased initial cost in having to provide a separate ventilation pipe for the drains, independently of the severed soil pipe; and if that is the only legitimate reason that can be advanced against it, I am willing at once to concede the point as regards this mercenary view; but is life worth only a few shillings, or can such small considerations bear any comparison with the risk and danger to health which the inmates of any house must inevitably run if their domicile is directly connected with the hundreds of miles of public sewers which exist in an ordinary town?

We are repeatedly assured by the advocates of the connected soil pipes that no harm can arise from them if the pipes are open at the top and carried above the roof of the building, and the closet well trapped and ventilated; but I can assure them that there never was a more mistaken idea, for I have proved over and over again that a high wind will so perturb the water in closet traps, that when it is in a state of agitation it will take up the gases from the sewers and discharge them on the other side, or will so foul the water in the traps that in a short time it will readily emit the gases to the interior of the house. But there is another risk, and one that is certain to cause trouble in the house sooner or later, and that is the inevitable joint in the waste-pipe between the trap and the soil-pipe, for, although we have the patented connexion of several distinguished firms of manufacturers, in which is provided all the safety that ingenuity may be able to devise, yet it is impossible to provide a never failing joint, that shall remain firm under all circumstances, and stand the test of the rough treatment to which it is sometimes exposed. The severed soil-pipe is free from all these risks and disadvantages, and when a separate ventilation flue is provided for the drains there exists even a better means of escape for sewer gases than is provided by the connected soil-pipe.

But in all these sanitary arrangements it is impossible to lay down rules which shall never be departed from; and it may, under certain circumstances and in certain wholly covered or closely confined places, be found absolutely necessary to connect the soil-pipe, and in such cases it would naturally become the sewer ventilator. Each case, then, should be treated on its own merits, and as an architect designs the main structure so he should make it part of his duty to lay down a complete system of sanitary appliances for all buildings entrusted to his care; and if suggestions may be offered respecting the principles which should govern such arrangements, I would say that no pipe should be embedded in walls or ceilings, that no enclosures should be permitted to sink closets, lavatory basins, or baths, and that no waste-pipe should be closed against the admission of fresh air to every part of it; for, wherever such enclosures occur, there will dust and dirt accumulate, stagnant air be pent up, decomposition promoted, the invigorating properties of the air consumed, and health reduced in tone.

But after all is done that combined science and skill are capable of effecting in devising and scheming these appliances; after every provision has been made for gaining ready access to all parts of them for cleaning or repairing purposes; and after every consideration has been given to the admission of fresh air to every part, there still remains imposed on the head of every household the responsibility of maintaining the arrangement unimpaired in its efficiency and of protecting it from the mutilations of the careless or ignorant workmen. Not, however, until the householder recognises his responsibility in this respect and takes the trouble to find out the difference between the skilled and unskilled workman—not, in fact, until he has the moral courage to decline the services of the unskilled artisan, can he expect to receive immunity from the evil consequences of insanitary workmanship, for under the existing circumstances it is not to the interest of the builders' journeyman to trouble himself about the technicalities and science of his trade, nor under the present system is his employer in a much better position; for the more carelessly the work is executed the more frequently will his services be required, and the longer he is occupied in executing it the better will he be paid.

FACTORY BUILDINGS, PRESTON, LANCASHIRE.—Buildings in connexion with the Electric Railway and Tramway Carriage Works, Limited, are being erected on "The Marsh." The architects are Messrs. Garlick & Sykes, and the builders are Messrs. T. Croft & Sons.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

At the last meeting of the London County Council, the following applications under the London Building Act, 1894, were considered. Those applications to which consent has been given are granted on certain conditions. Names of applicants are given in brackets. Buildings are new erections unless otherwise stated.

Lines of Frontage.

Strand.—That consent be given to Messrs. Henry Poole & Co. to retain an iron and glass shelter at the entrances to Nos. 37 and 38, Savile-row, St. James's, extending beyond the general line of buildings in that street.—Agreed.

Lewisham.†—A house, with shop, on the south side of Sydenham-road, Lewisham, to abut upon Newlands Park (Mr. W. F. Young for Mr. R. Norden).—Consent.

Strand.—Buildings on the site of Nos. 173 to 179 (inclusive), Strand, and No. 2, Norfolk-street (Messrs. White & Co.).—Consent.

Deptford.—A one-story building to adjoin No. 79, Foxberry-road, Deptford (Messrs. Wakeford & Sons for Mr. J. Broomfield).—Consent.

Hammersmith.—A one-story station building on part of the forecourts of Nos. 48, 50, and 52, Uxbridge-road, Hammersmith, at less than the prescribed distance from the centre of Providence-place (Sir Benjamin Baker for the Central London Railway Company).—Consent.

Kensington, North.—An enclosed brick and stone porch at the entrance to No. 13, Lansdowne-road, Notting-hill (Mr. W. Flockhart for Mr. E. Davis).—Consent.

Marylebone, West.—That Mr. G. Hornblower be informed that his application on behalf of Messrs. Marshall & Snelgrove for the consent of the Council to the erection of an iron and glass roof over a portion of Stratford-mews, St. Marylebone, in front of Nos. 2 to 7, Stratford-mews, having been further considered, the Council sees no reason to depart from its decision of June 13 last not to grant the application.—Agreed.

Width of Way.

Stepney.—Dwellings on the site of Nos. 1 to 6, Union-street, Mile End-road, to an advanced line of frontage (Messrs. J. Hood & Sons for Messrs. D. & M. Cohen).—Refused.

Space at Rear.

Greenwich.—That the Council do, in the exercise of its powers under Section 41 (1) (vi.) of the London Building Act, 1894, allow a modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed erection of houses with shops on the north side of Humber-road, Westcombe Park, Greenwich, with irregular spaces at the rear (Mr. E. Crosse for Mr. J. H. Haire).—Agreed.

Deviation from Certified Plans.

Marylebone, West.—Certain deviations from the plans certified by the District Surveyor, under section 43 of the London Building Act, 1894, so far as relates to the proposed rebuilding of the Christian Union Almshouses, Nos. 27, 28, and 29, John-street, Edgware-road, St. Marylebone (Mr. E. C. Frere for the committee of the institution).—Consent.

Line of Frontage and Width of Way.

Rotherhithe. — That the application of Mr. J. Hartnoll for an extension of the period within which the erection of a wall and buttress at Hanover-buildings, Tooley-street, Rotherhithe, was required to be completed, be not granted.—Agreed.

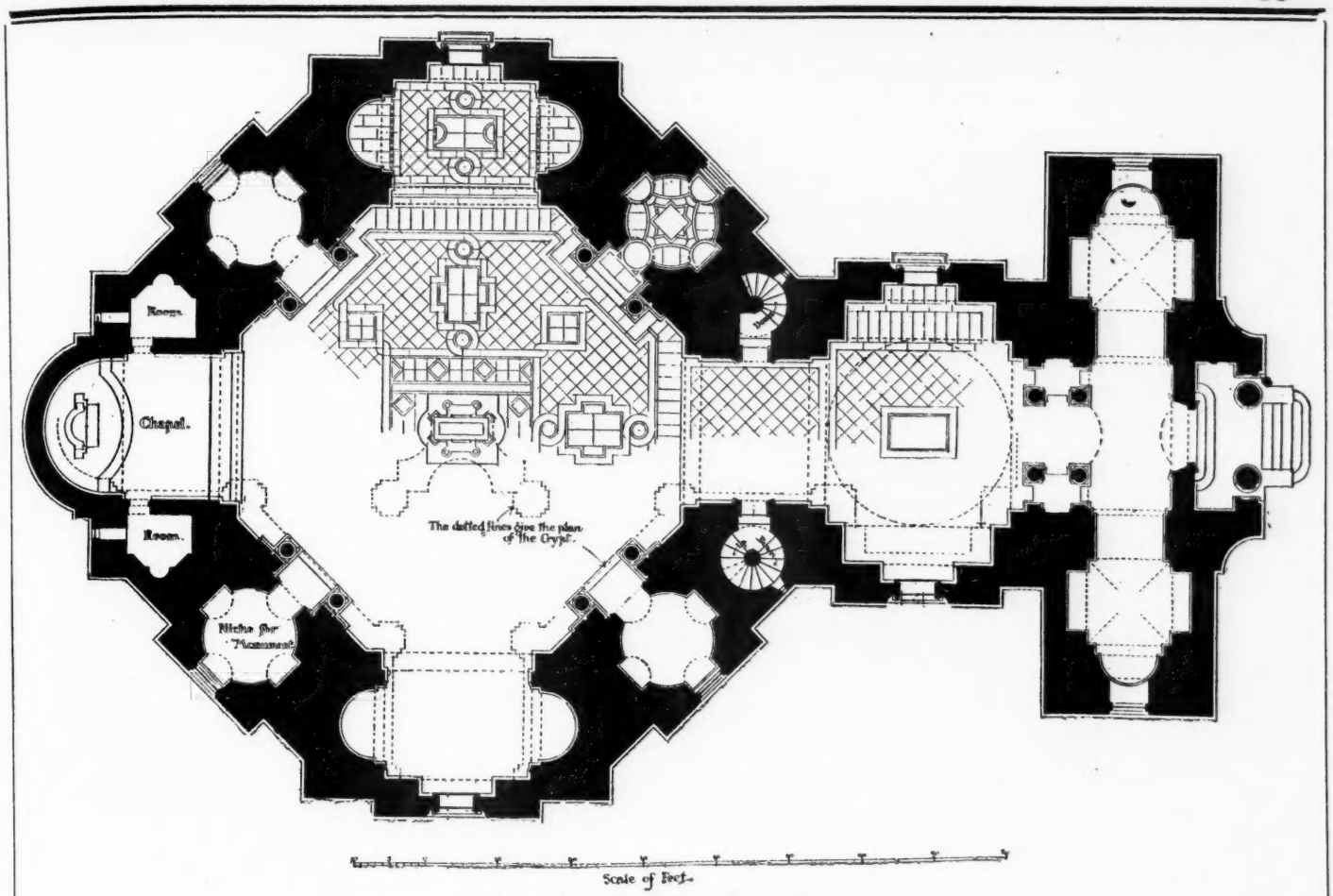
Line of Frontage, Width of Way and Space at Rear.

Kensington, South.—That the Council, in the exercise of its powers under Sections 13 and 41 of the London Building Act, 1894, do not consent to, nor allow, the erection of a block of residential flats on the west side of Wright's-lane, Kensington, with a portion of the forecourt boundary or fence at less than the prescribed distance from the centre of the roadway, a portion of the building to extend above the diagonal line as directed to be drawn by the said Section 41 of the Act, and an open space at the rear (Messrs. Metcalf & Grieg for the Mansions Estate Company, Limited).—Agreed.

Cubical Extent.

Finsbury, East.—That the Council, in the exercise of its powers under Section 207 of the London Building Act, 1894, do consent to the alterations of Nos. 2 and 3, Old-street, and Nos. 68 and 70, Goswell-road, St. Luke's, and premises adjoining, exceeding 250,000 cubic feet in extent (used for the purposes of the trade of millwrights and engineers), without such premises being divided by party walls as required by Section 75 of the Act (Mr. H. O. Ellis for Messrs. R. Moreland & Son, Limited).—Agreed.

The recommendation marked † is contrary to the view of the Local Authority.



Design for a Royal Mausoleum. Plan.

Illustrations.

DESIGN FOR A ROYAL MAUSOLEUM.

THESE drawings were submitted in competition for the Tite prize at Christmas, 1898, and were awarded a certificate of "honourable mention."

The design was kept as simple as possible, in the hope of obtaining a severe and monumental character.

The light is admitted principally through the opening at the top of the dome, immediately over the Royal tomb. The small-domed chapels in the angles would be for less important tombs. E. T. JAGO.

THE PORTE MONUMENTALE, PARIS EXHIBITION, 1900.

THE foundations, composed of piles, for this monument, which will form one of the most original and brightly-coloured of the many large temporary buildings now being erected for the coming Exhibition, have now been completed, and the architect, M. Binet, is finishing his various studies and models so as to be able to carry out the whole work of construction and decoration in a very rapid manner. This monumental entrance, of which we give a few details, will be placed on the west side of the Place de la Concorde at the end of the Cours la Reine, and will form the principal entrance to the exhibition grounds on the right bank of the Seine. The idea of characterising the principal entrance to an exhibition by a vast architectural composition is due to the genius of M. Binet, who wished to improve on the old style of a few wicket-gates and ornamental flag-staffs, and whilst producing an elegant monument, by means of an ingenious arrangement of plan to facilitate greatly the rapid entrance of large crowds of visitors.

The entrance is composed of three immense arches each 65 ft. wide, opening into a dome pierced by a central eye, and flanked by ornamental buttresses each supporting a lofty decorated minaret 160 ft. high. The vestibule covered by the dome occupies over 6,000 superficial feet, and is surrounded by 58 entrance gates and pay-boxes arranged in a very ingenious manner so as to allow entrance to be made under and over each pay-box by means of slightly rising or falling slopes. The only non-available space taken up in the semi-circle of entrances is that occupied by the slight thickness of the dividing partitions. It is calculated that 60,000 visitors may very comfortably enter through the entrances in an hour.

The style of the building will be somewhat Arabic as regards the decoration. The maquette, or large model, which has been carefully prepared, gives a very good idea of what the Porte Monumentale will be when completed—a light and elegant construction covered with sculpture and coloured with mosaic and glass decorative materials. Above the keystone of the front arch is an excellently modelled and decorated prow of a ship, to symbolise the Ship of State ; the summit of the dome will be crowned by an immense figure of Fame. The base of the front portion of the building will be ornamented with a frieze representing a crowd of workmen of all trades hurrying to their work—all helpers in the preparation of the coming Exposition. This frieze is the work of M. Guillot, a young sculptor who has a great future before him.

The whole building will be lighted by electricity at night time, and the effect will be very brilliant and possibly too gaudy. The whole will be constructed of iron and wood in as light a manner as possible, and covered with plaster and cement. Nearly all the decorative sculpture will, of course, be formed of plaster or "staff," enamelled or painted. The cost is estimated at 22,000*l*.

M. Binet, the architect, obtained in partnership with M. Deglane the second premium for their designs, sent in two years ago for the competition, for a general scheme for the Exhibition, and whilst M. Deglane was appointed one of the architects of the Grand Palais des Beaux Arts in the Champs Elysées, M. Binet was allowed to study out his ideas for a monumental entrance building. M. Binet, aged thirty-three, was a pupil of M. Laloux at the Ecole des Beaux Arts, and one of the most brilliant of the students at the School. M. Gentil is his chief inspecteur, and two clever sculptors, MM. Jouve and Jondet, are now modelling the decorative portions of the building.

SKETCHES WITH THE ARCHITECTURAL ASSOCIATION EXCURSION.

THESE sketches are of some of the buildings that the Architectural Association visited during their annual excursion, which has just concluded. Some of the buildings are referred to on another page in a report of the proceedings of the excursionists.

THE SANITARY INSPECTORS' ASSOCIATION:

CONFERENCE AT LINCOLN.

THE annual provincial Conference of the Sanitary Inspectors' Association was opened on Thursday last week at the Guildhall, Lincoln. At the opening meeting, the Mayor (Mr. Alderman Wyatt) presiding, a large company was present to welcome the members of the Association, who were headed by the Chairman of Council, Mr. T. J. Moss Flower, who had been suddenly called upon to take the place of the President of the Association (Sir John Hutton), whose absence was due to illness.

The Mayor, the Dean, Mr. Seely, M.P., and others, having welcomed the visitors,

The Conference proceedings commenced with the delivery of the inaugural address by Mr. Moss Flower. Reference was made in the course of the paper to the success that had attended the efforts of the Committee in organising the excellent Health Exhibition to be opened later in the day. This was a new departure for the Sanitary Inspectors' Association. The undertaking had been rendered easy by the inspiriting example set by the people of Lincoln, who had supported the proposal with great heartiness and energy—an example they hoped to see followed by other towns in future years. The chief objects of the Association and its constitution were then referred to. Its growth from a very few members in 1883, when the society was founded, was described, and its present prosperity, numbering as it did over 700 members, with five branches operating in various parts of England. The multifarious duties which had been put by legislation on the sanitary inspector demanded a great deal of knowledge on his part, particularly of drainage, plumbers' work, ventilation, water supply to houses, and the sanitary requirements of all classes of dwellings. The ideal inspector must be resourceful, diplomatic, and courteous ; sympathetic when dealing with the poor, firm and unscrupulous when dealing with breakers or evaders of the law. It would therefore be easily seen that men with characteristics such as these could not be found unless reasonably good salaries were offered, nor unless they could have a reasonably secure tenure of their offices. The efforts of the Association to secure these objects, as well as to improve the status of the sanitary inspector, were referred to. The inadequacy, in many cases, of the salaries of

inspectors, and the desirability of a special Health Department of State presided over by a Minister of Cabinet rank, were among the other topics touched upon in the inaugural address.

In the afternoon the members of the Association were entertained at luncheon in the Corn Exchange by the local Committee. The Mayor presided.

Subsequently, the party assembled at the Drill Hall of the 1st Volunteer Battalion Lincolnshire Regiment for the opening of the Health Exhibition. The duty of formally declaring the exhibition open was delegated to Mr. Embleton Fox, Chairman of the Lindsey Council.

In the evening the visitors were invited by the Mayor to a garden party given in the Arboretum.

On Friday the sittings of the Conference were resumed at 9 a.m. with a Council meeting held in the Mayor's parlour at the Corporation Offices. The public meetings began at 11 a.m. in the theatre of the School of Science and Art, placed at the disposal of the Association by the curator, Mr. Hallows. Mr. Moss Flower, who presided, very briefly introduced the proceedings. At the Council meeting the proposed benevolent scheme had been finally discussed and approved, and it would soon be in working order. The proposed Parliamentary Bill, in favour of security of tenure of office, was also approved, and they hoped all would endeavour to interest Members of Parliament in it and take every means available to secure the passing of the Bill into law next Session.

Sanitary Work in Lincoln.

The first paper read was a summary of "Thirty-three Years' Sanitary Work in Lincoln," prepared by Mr. H. K. Hebb, J.P. (the late Town Clerk), who had been secretary to the Urban Sanitary Authority from 1866 to 1898. Before 1867, said the author, many of the powers now centred in the Corporation were exercised by nineteen different bodies. Besides the Corporation itself, which had then some useful, but limited powers, they had Commissioners for paving, lighting, and watching the City of Lincoln and its appurtenances; Boards of Surveyors of Highways, one for each of the fifteen parishes of the city, besides gasworks and waterworks. Governed by the expressed wish of the citizens, the Corporation had at the earlier part of this period abstained from any effort to provide underground drainage and sewage irrigation, though they actively put into force other provisions of the Local Government Act. In 1871, after an inquiry by the direction of the Home Secretary, the City Council was compelled to provide a system of sewerage, and the work was vigorously prosecuted. The advantages to the citizens of this centralisation of municipal power in the hands of the Corporation was soon evident; by the municipalisation of the gasworks, for example, the price of gas had been reduced from 3s. 2d. to 2s. 1d. per thousand cubic feet, and many thousands of pounds had been paid out of gas revenue to aid the general district rate. Some of the more important improvements effected by the Corporation, particularly in the latter portion of the period, were enumerated in the paper. Among these was the Lincoln Electric Lighting Act, which received the Royal Assent in 1897, and by the end of the year 1898 the works for lighting the prescribed area of the city by electricity were practically complete. A table of figures was given which showed the progress realised in Lincoln between 1866 and 1898. At the beginning of that period the Corporation had no debt; at the end of it they owed 470,000*l.* The assessable value of property had risen within the same period from 71,000*l.* to 173,000*l.* It was true that the rate in the pound, which was only 1s. in the beginning, had risen to 4s. 6d. in the pound at the end; but the improvement in the public health that resulted was to be measured by the fact that, while in 1867 the death-rate of Lincoln was 21·9 per thousand of the population, the present death-rate was only 15·2 per thousand.

In the discussion which followed, on a proposal of thanks from the chair, seconded by Mr. Young (Battersea), and supported by many members, the municipalisation of all public undertakings was advocated. The resolution of thanks was carried by acclamation, and

Mr. Hebb briefly responded.

Papers were next read by Dr. G. M. Lowe (late Public Analyst for Lincolnshire) on "The Action of Sun, Air, and Vegetation on Surface Waters," and by the Chairman, Mr. Moss Flower, on the "Sources of Underground Water Supplies," a discussion on the two papers following.

Action of Sun, Air, &c., on Surface Water.

In Dr. Lowes paper, the solvent power of water was pointed out as one of the chief causes of its pollution. Water exposed to air became contaminated by the gases and vapours it dissolved, 100 cubic feet of water being capable of dissolving of ammonia, for example, no less than 67,000 cubic feet. When water was saturated with carbonic acid it readily dissolved from the soil its carbonates and sulphates, and all river waters contained more or less organic matters from town sewage, surface drainage, and animal and vegetable decay. The Thames, for example, received sewage from towns containing over 700,000 inhabitants, and if it did not contain some natural means of self-purification it must soon become little better than a filthy sewer. The chief of these means were vegetable growths, air, and sunlight, and the maintenance of a balance between the animal and vegetable growths contained therein. Prolonged frosts destroyed this balance, sometimes with disastrous results, as in the case of the Witham, at Lincoln, in 1891. This teaching of nature had been carefully followed by Mr. Teague, the late engineer for the Water Works Committee of Lincoln, who recognised that filter beds were not effective until they had become permeated with a confervoid growth, and the same principle was explained, in connexion with the outbreak of cholera at Hamburg, by Dr. Koch. The conclusions submitted by Dr. Lowe was that a knowledge of the physical properties of water and of the effects of sunlight, air, and plant life on its organic impurities, together with a bacteriological investigation of the local peculiarities of each district, was necessary to enable the sanitary authorities to work with efficiency.

Underground Water Supplies.

Mr. Moss Flower thus enunciates the problem which most local authorities are at some time or other confronted with:—"How best to provide a good and sufficient supply of pure water for present and future needs, at a cost which ratepayers can reasonably be expected to incur, bearing in mind that anything but a pure supply is dear at any price?" According to the report of the Rivers' Pollution Commission, waters ranged themselves in the following order as regards freedom from organic matter:—(1) Spring water; (2) deep-well water; (3) rain water; (4) upland surface water (very inferior); shallow-well water being included in the last category. Thus, while deep-well water was among the most wholesome, shallow-well water was amongst the most dangerous of sources of water supply. A well is to be considered a shallow one no matter what its depth may be, provided its supply is not furnished from a water-bearing formation lying beneath one or more impervious strata. Water from the millstone grit was usually excellent; that from magnesium limestone had a wonderful absorbing capacity, but it was generally hard, and contained considerable quantities of calcium sulphate. The author concludes in his paper that towns seeking to increase their water supply should not at once discard the possibility of being able to get what may be required from deep wells, and careful inquiry should, therefore, in all cases be made into this matter before deciding in favour of a surface supply. Often the objection to cost of pumping is raised, but with modern machinery, giving a high state of efficiency, this cost is comparatively trifling.

A vote of thanks to the readers of both papers was proposed by Mr. Grigg (Vice-Chairman of Council). Mr. Curtin (Chief Sanitary Inspector, Lincoln) seconded the proposal.

Mr. Munro (Enfield) pointed out the waste of good water caused by the practice of flushing sewers and cleansing streets. If that extended, there would not be sufficient pure water for drinking purposes. Why not use for this purpose the water from the clouds or sea water where they could easily get it?

Mr. Humphery (Reigate) pointed to the embarrassment caused to inspectors by the divergent opinions sometimes expressed by experts. He had taken samples of water from the same source to different analysts, and while one said it showed signs of pollution, the other declared he had never seen better water in his life. Perhaps bacteria went in colonies, and so samples taken from the same sources, but at three or four days' interval, might in that way give very different results.

Mr. Denham (Tadcaster) thought the Public Health Act did not give sufficient powers for the protection of sources of supply, and that it should be amended.

At this point the discussion was adjourned until after luncheon, and a brief inspection of the School and Museum under the direction of Mr. Hallows.

After luncheon, Dr. Lowe and Mr. Moss Flower responded to the vote of thanks and replied, in considerable detail, to the questions and observations of various speakers who had taken part in the discussion of the morning.

Three other papers were then read, one on "Smoke Prevention," illustrated by a number of chemical experiments, by Mr. G. T. Dee (Senior Sanitary Inspector, Westminster); the second on "Slaughter Houses and Slaughter House Inspection," by Mr. Geo. Anderson (Senior Sanitary Inspector, Middlesbrough); and the third on "The Construction and Sanitation of Cowsheds and Dairies," by Mr. Skinner (Chief Sanitary Inspector, Brighton), a discussion on the three papers being afterwards opened.

Prevention of Smoke.

The Prevention of Smoke would soon be effected, Mr. Dee contended, if such drastic remedies were in vogue now as in England 600 years ago, for it is on record that "in the reign of his most gracious Majesty King Edward I., one John—— was tried, condemned, and executed for burning coal in the City of London." Such methods of cure being now out of the question, the law-breakers must be reasoned with and shown that not merely for the good of the greatest number, but for their own good, manufacturers ought to consume their own smoke. By a few simple experiments, Mr. Dee demonstrated that flame is the result of burning certain compounds of hydrogen and carbon in oxygen, or in atmospheric air; that oxidation takes place equally, whether we burn atmospheric air in coal gas or coal gas in atmospheric air; that in one typical form of combustion the hollow cone in a burning candle consists of gases distilled from the solid hydro-carbon (tallow or wax) which burn on the outer side only, *i.e.*, where in contact with oxygen; that no black smoke is produced in the process where combustion is perfect, as in the Bunsen burner; that black smoke is produced by rendering the combination imperfect, either by an insufficient or an excessive supply of air; and that the only black substance (if any) set free during combustion is carbon. From these experiments it resulted that the perfect oxidation of all the carbon in a combustible prevented the possibility of any black smoke. The different kinds of coal were shown to be the result of the combination in various proportions (by natural chemical processes taking place in the earth) of hydrogen, oxygen, and carbon. A good furnace was simply a vessel in which the whole of the carbon contained in a combustible turned into carbon dioxide, which must be effected by means which will give perfect control over the rate of the flow of air, *i.e.*, by air inlets and outlets, and the means of shutting both off, either wholly or partially. A list of patents, all taken out before the author was born, embodied all or nearly all the principles contained in the numerous existing patents for perfect combustion furnaces. Beginning with Papin (1695), the list included patents by James Watt (1785), De Prony (1810), Green (1853), Galloway (1854). The furnace which in the opinion of the author best combined these principles was the Murphy Smokeless Boiler Furnace, largely used in America, and daily in use in this country at Lincoln Works, Chesterfield. This furnace was illustrated by diagrams hung on the wall.

The legal aspect of the subject was that which most concerned the sanitary inspector, because it was incumbent on him to determine when the emission of black smoke from chimneys, other than those of private dwellings, became a nuisance. The character of a neighbourhood was a determining factor. Thus, in Westminster, where the author was engaged, a much less amount of smoke would be considered a nuisance than would be tolerated in Bethnal Green, where the factories are surrounded by the houses of the people

who work in them. Their great object should be the protection of the public. The efforts of the conscientious furnace-user should be respected, but the persistent offender should be reported again and again, and the unsympathetic magistrate should be wearied into well doing. Still, sanitary inspectors must proceed with caution, because the manufacturer and the smoke-producer had influence on every Town Council.

Slaughter-houses.

Mr. G. Anderson, in his paper, said continental nations, in this matter, set us a good example which we seemed slow to follow, but we had made some progress. Had the Public Health Act, 1890, been made retrospective, so as to apply to existing slaughter-houses, that progress would have been much greater. The Public Health Act, 1897 (Scotland), went further and exacted an annual licence. What was good for Scotland would be equally good for the rest of the United Kingdom. The provision of public slaughter-houses (with necessarily efficient inspection) was comparatively useless so long as butchers were permitted to use private slaughter-houses. Innumerable were the devices resorted to to evade the inspectors. As recommended by the Royal Commission on Tuberculosis, Local Authorities should have power to declare that no other place (than the public abattoir) shall be used for slaughtering after the expiration of three years from the date of notice.

Sanitation of Dairy Farms.

Mr. Skinner, in his paper on the "Sanitation of Dairy Farms," gave practical directions as to efficient inspection, water-supply construction, and cleansing of stalls and milk and food stores. The paper recommended the keeping of a register on each dairy farm showing the date of arrival of all new additions to a herd, the date of its removal, and an entry as to how it was disposed of. Every newly-arrived animal should be isolated for at least a fortnight before being allowed to mix with the herd.

In the discussion which followed on the vote of thanks, the Chairman, Mr. Berry (Derby), Mr. Jacklin (Maidstone), Dr. Lowe (Lincoln), Mr. Shawcross (Manchester), Mr. West (Walthamstow), Mr. Tidman (Hon. Sec. of the Association), Mr. Thornley (Beckenham), and others took part. Mr. West suggested that at all meetings of Sanitary Inspectors they ought to pass resolutions showing that there was a unanimous consensus of opinion that private slaughter-houses ought to be abolished, and that the exclusive use of public abattoirs was essential to the health of the people. After Mr. Dee, Mr. Anderson, and Mr. Skinner had severally responded to the vote of thanks, a resolution, proposed by Mr. Anderson and seconded by Mr. West, was unanimously adopted in favour of the exclusive use of public abattoirs as slaughter-houses.

The last paper, "Domestic Sanitation," was read by Mr. W. Watkins, of Lincoln. It is printed on another page.

Mr. Moss-Flower, in opening a discussion on the paper, said it was a great pleasure to find in Lincoln architects like Mr. Watkins, who gave so much attention to practical requirements in the planning and construction of buildings.

Several speakers criticised adversely some of the sanitary proposals contained in the paper. Mr. Young said Mr. Watkins and other gentlemen had been hard upon the poor plumber. He did not think that in all cases it was just to condemn the plumber for the defective arrangements sometimes discovered; it was often the plans that were at fault. He instanced from his own experience defective arrangements ordered by architects; in one case, in the plans for a large church, the drain was directed to be carried under a tower 150 ft. high, although there was a sewer in a convenient position, where the connexion could be far more easily made. With regard to trapping soil-pipes, the London by-laws distinctly prohibited traps being placed at the foot of soil-pipes. Mr. E. Tidman agreed with the views of previous speakers with regard to fixing a trap at the foot of a soil-pipe, the difficulty of making a sound joint being almost insuperable.

The resolution of thanks having been carried by acclamation, Mr. Watkins replied.

In the evening the annual conference dinner was held at the "Saracen's Head" hotel. Among the principal guests around the Chairman (Mr. Moss Flower) being the Mayor of Lincoln, the City Sheriff, Dean Wickham, Colonel Verner, C.B., Dr. Harrison, Alderman Maltby, and other members and officials of the Corporation of Lincoln. After the loyal toast, given from the Chair, the City Sheriff proposed "The Army and Navy," to which Colonel Verner replied. The Dean replied to the toast of "The Clergy and Ministers of all Denominations," and the toast of the evening, "Success to the Sanitary Inspectors' Association," was given by Mr. Footman, Chairman of the Sanitary Committee of the Corporation.

Mr. Moss Flower, in responding, acknowledged the heartiness of the welcome extended to them by all classes in the city of Lincoln. Every new function placed them under a new obligation. They were greatly indebted to the city officials, especially to Mr. Page (Deputy Town Clerk), Mr. McBrair (City Surveyor and Hon. Secretary), and to their esteemed colleague, Mr. Curtin, who, as joint Hon. Secretary, had been most indefatigable. Other toasts followed.

The final sitting of the Conference took place on Saturday morning in the School of Science and Art, when votes of thanks were accorded: to the Mayor, the Hon. Secs., Committees, and the various bodies who had contributed to the success of the Conference and had so greatly enhanced the enjoyment of its members.

The votes were acknowledged by the Mayor, Dr. Carline, Mr. Curtin, &c., the proceedings concluding with a visit to the sewerage works of Lincoln, and, later in the afternoon, an "At Home" at the Castle given by the Reception Committee.

ARCHITECTURAL SOCIETIES.

Bristol Society of Architects. — On Tuesday, the 1st inst., the members of this Society and friends visited Bath, when the remains of the Roman baths and the new buildings recently erected by the City Authorities under Mr. Brydon were inspected. Luncheon was served in the old Council Chamber at the Guildhall, Mr. Alderman Moore, Councillors Silcock, Cotterell, and Henshaw, and the Town Clerk being present. After lunch coaches were requisitioned, and the party drove to the old manor houses of South Wraxhall and Great Chalfield, which are so full of Tudor and Jacobean work.

COMPETITIONS.

New Stores at Wakefield.—About three months ago the directors of the Wakefield Industrial Society offered 100*l.* in premiums for the three best sets of designs for the new central stores. The award has been made as follows:—First premium, 50*l.*, "Unity," Mr. A. Hart, Wakefield; second, 30*l.*, "Ad Valorem," Mr. W. Wrigley, Wakefield; and third, 20*l.*, "Congress," Mr. F. W. Dixon, Manchester.

Masonic Hall, Aldershot.—The competition for the design of a new Masonic Hall at Aldershot has now been decided. Sixteen designs were sent in, and the assessor was Mr. Edwin O. Sachs, who awarded the first premium to the design entitled "Labour and Refreshment," recommending the author to be commissioned to erect the building with certain modifications. The Board of Directors have approved of his report. The assessor further reported that no second premium could be awarded, as no one design showed sufficient superiority over the remainder to merit this distinction. On opening the sealed envelopes, the authors of the selected design were found to be Messrs. Clarence T. Coggin, A.R.I.B.A., and Thos. Wallis, of 15, York-buildings, Adelphi, London, E.C.

Board School, St. Thomas, near Exeter. —The competition for the new Board School for the district of St. Thomas, near Exeter, has recently been decided, the assessor awarding the first premium of 50*l.* to Messrs. McKewan & Dunn, of Birmingham, and the second premium of 25*l.* to Messrs. Ayling & Hulbert, of Westminster.

Public Improvements, Worcester.—A Local Government Board inquiry was held recently in the Guildhall, Worcester, by Mr. E. A. Sandford Fawcett, into an application by the City Council for sanction to borrow 6,250*l.* for the purchase of land for the improvement of the Foregate, 3,000*l.* for purposes of electric lighting, and 500*l.* for hospital purposes. The City Engineer, Mr. Caink, and the Electrical Engineer, Mr. Sutherland, gave evidence.

Correspondence.

To the Editor of THE BUILDER.

THE TRUE USE OF MODELS.

Sir,—The motion recently made in the House of Lords by the Earl of Wemyss that a model of every intended public building should be exhibited, seems to direct attention to models of buildings, and perhaps you will admit a few observations on the subject.

It is common for models to be produced in Court on the trial of actions relating to buildings, and it will, I think, be generally admitted by those familiar with their use, that (1) they produce a more definite impression than plans or photographs, but (2) that such impression is exaggerated. The reason is not far to seek. The point of view from which a model is inspected is in nineteen cases out of twenty quite different from that of the spectator of the real thing.

We get a bird's-eye view of the model. To be properly instructed by the model we want to get a *man's-eye view* of it. In the fine model which is hidden away somewhere at St. Paul's of Wren's rejected design for that cathedral, the floor of the interior is mostly cut away, and whenever I have seen it the floor level has been about five actual feet from the ground, so that you can move about inside the model with your eye at the right height to scale, and so form a fairly true impression of the effect the building would produce; and similarly as you move round the model outside, still at the proper level, you obtain very nearly the effect which the solid building would produce.

If this precaution were observed, Lord Wemyss' models would be useful; but if, as is mostly the case, they are looked down upon and not looked up to, they will, it is true, afford the same information as a block-plan, though more definitely and impressively, but they will not enable the spectator to judge of the results half so well as a faithful perspective drawing. The most beautiful model I have seen was the one in which the late William Burges embodied his design for the coloured decoration of St. Paul's; but when shown at the Royal Academy it failed to impress the public with any adequate idea of the really magnificent and harmonious scheme which it was intended to illustrate.

There is one use of the model which is of very great value to an architect. I refer to full-size models of the critical or unusual features of a building, especially those that show against the sky. These are to the last degree helpful when put up in place; but here again the point of view comes into play. The value of the full-size model only comes out when you see it from the position from which the real feature is to be seen; and *mutatis mutandis* the model to scale cannot be of service unless so constructed and viewed as to be visible from the same level and the same distance, to scale, as the intended building.

T. Roger Smith.

University College, London.

THE SANITARY INSPECTORS' EXAMINATION BOARD.

Sir,—My attention has been called to a paragraph in your issue for July 8, page 48, in reference to the Sanitary Inspectors' Examination Board. There appears to be some confusion in the statements made in this notice.

"The Sanitary Inspectors' Examination Board" (formed by the Sanitary Institute and other bodies) was incorporated in February, 1899, for the purpose of holding examinations for Sanitary Inspectors and for Inspectors of Nuisances under the Public Health (London) Act, 1891, or any subsequent Act of Parliament or order of the Local Government Board which may require Sanitary Inspectors and Inspectors of Nuisances to hold certificates. But it has not yet held any examinations, and as far as I am aware it has not expressed any intentions of holding examinations in the provinces.

The examinations at Bristol, Glasgow, Birmingham, London, Belfast, York, and others referred to in the paragraph, are all arranged under the auspices of the Sanitary Institute alone.

The Sanitary Institute are not now holding examinations for Sanitary Inspectors under the Public Health (London) Act, 1891, but are continuing on the same lines as before examinations for Inspectors of Nuisances under the Public Health Act, 1875.

I enclose a list of the forthcoming examinations, arranged by the Sanitary Institute, for the present

year and an advanced list of dates and places proposed for the examinations for 1900.

E. White Wallis,
Secretary, Sanitary Institute.

The Student's Column.

ROADS: THEIR CONSTRUCTION AND MAINTENANCE.

PART I.—MATERIALS (*Continued*).

7.—FLINT, CHERT, GRAVELS, &c.

IN the course of our survey of the rocks used as road metal, it has been continually pointed out that silica plays the chief part in conferring hardness and durability upon the igneous rocks, as well as in the consolidation of sandstones and limestones. Hitherto, however, we have seen the influence of silica as a constituent of rocks, in company with other minerals, either in the free state as quartz, or combined in the form of various silicates. We have still to consider the nature and properties of silica itself, when used alone in the form of flint or chert as material for macadam.

Flint.—This substance is derived mainly from the upper chalk, where it occurs in nodules and tabular masses. Similar nodules occur, also, in other limestone beds, notably in the Portland oolite and carboniferous limestone. Large quantities of flint are also obtained from gravels and shingle beds resulting from the denudation of chalk strata.

Chemically considered, flint is a variety of silica allied to chalcedony; but although from an ordinary microscopic examination it may appear to be homogeneous, when submitted to microscopic investigation in a thin, transparent slice it is found to possess a well-marked composite structure. Two forms of silica are seen to be present, the opaline or colloid form being intermingled with microlites or embryo crystals of quartz. This combination of colloid and crystalline silica furnishes the key to the behaviour of flints under weathering influences. Although flint is regarded justly as one of the most chemically stable of rock-forming minerals, yet it is capable of being acted upon by solvent agents in the form of alkaline solutions of suitable strength. This is more especially the case with colloid silica, which is more readily dissolved than the crystalline form.

If we consider the probable origin of flint the reason for its composite nature becomes evident. In some cases flints may be merely the result of the replacement of calcium carbonate by silica in the manner already described as occurring in the silicification of the limestones and the formation of chert. The majority of chalk flints, however, appear to have resulted from the segregation of gelatinous silica, round sponges, and other organic remains, since sponge spicules are particularly abundant in flint nodules. Now sponge spicules consist originally of colloid silica, and it is possible that the original segregated silica was also in the colloid condition. Flint nodules would, therefore, in the first place, consist of colloid silica throughout. By subsequent changes, however, this substance gradually becomes converted into chalcedony, a cryptocrystalline variety of quartz. They become thus true alteration pseudomorphs, and the difference in their structure depends greatly upon the extent to which the opaline or colloid silica has been converted into the crystalline form. Otherwise flints do not possess any notable variations. Chemical analysis shows them to be in a state of great purity, possessing but a minute trace of foreign matter, of which, perhaps, water is the most important. The following is the result of an analysis of chalk flints by Klaproth :—

Silica	98·00
Lime.....	0·5
Alumina	0·25
Iron	0·25
Water	1·0

Flints are often more or less hollow in the interior, the cavities being lined either with small quartz crystals, or with the characteristic mammillated surface peculiar to chalcedony.

Weathering of Flints.—The superiority of weathered flints to those taken fresh from the chalk for road-making purposes is a fact long established by experience and adds a practical interest to the investigation of the change which flints undergo in the process of weathering. The black colour commonly present in fresh chalk flints was formerly ascribed to the presence of organic matter. It is now shown, however, to be due to the presence of colloid silica in the interstices between the crystalline portions of the flint, which, by the absorption of light, produces the black appearance. By the removal of this colloid silica in solution from the superficial portion by prolonged exposure to weathering influences, a porous white crust of pure powdery silica is produced. The bleaching which results from calcination is shown to be due to the formation of minute cracks and fissures throughout the mass. Dr. Percy has analysed the white crust of weathered flint and finds no chemical difference between it and the unweathered portion; although others have maintained that calcium carbonate is present to a greater extent.

A more important change which takes place in flints during the weathering process is the loss of the small amount of water which is always present in those taken fresh from the quarry. Small as is the percentage of water, yet its loss materially affects the cohesion and brittle nature of flints, which differ from other forms of silica in breaking with a conchoidal fracture, the splinters having exceedingly sharp edges. The behaviour of flint under percussion is also peculiar; even a slight blow appears to affect the molecular cohesion of freshly quarried flints, producing what is called a "bulb of percussion." The ease with which this may be produced is well shown by the "mastoid" pittings noticed on the black flints set in old buildings, and caused by the slight blows given by the hammer during the setting of the flints in their places. The incipient fractures thus produced have since weathered out, giving the above-mentioned appearance on the surface.

This excessive brittleness of flint is its greatest drawback to its employment as a road-stone, and causes fresh chalk flints to be almost useless for this purpose. Flints only part with the small quantity of moisture which they contain when fresh with extreme slowness, and some years' exposure to the weather is necessary before they become toughened. For this reason it is preferable to use flints picked from the surface of chalk districts, or those which have undergone prolonged weathering in the process of accumulation in gravel and shingle beds. Unrolled flints, however, which have been embedded for long periods in permeable soil do not always appear to acquire toughness. Sometimes the flints taken from such deposits are so extremely fragile that the mechanical process of removal causes them to disintegrate and fall to pieces. It has been noticed that long exposure to percolating water may cause flints to soften to such an extent that they can be cut with a steel knife, owing to the gradual removal of the colloid silica and the resulting powdery condition of the remaining crystalline chalcedonic silica as already described.

It seems also probable that in weathered flints the interstices left by the removal of the more soluble colloid silica are again filled up by crystalline silica, whereby the whole is recemented into a more stable and tougher form. Many flints show unmistakable signs that such a change has taken place, for shattered flint nodules are not uncommonly found welded together by subsequent cementation.

Chert.—Chert is a massive and compact form of amorphous silica, occurring as nodules or more often in beds in limestone rocks, geologically older than the chalk. It may be regarded as an impure flint; but the impurity, small as it may be in amount, serves an important end in preventing the conchoidal fracture and excessive brittleness of ordinary flint. Much of the chert occurring in limestone strata has evidently resulted from the replacement of calcium carbonate by silica. This replacement is seldom quite complete, and the composition of chert is, therefore, variable. Sometimes calcareous fossils are included in chert without having undergone any appreciable change; at other times these are represented by mere empty casts, the calcareous matter having been removed subsequently to the silicification of the limestone. Like flints, chert sometimes contains a considerable proportion of colloid silica, especially when sponge spicules are present in their original state. In the cherts from older rocks these spicules are more often converted into chalcedony. If they are not so converted they tend to disappear by solution, leaving empty casts. The cherts of the Hythe beds of Surrey and Kent, as well as some of the Upper Greensand cherts are often full of casts of sponge spicules. Sometimes the original sandy structure of the greensand is just visible. Many other original structures, both organic and inorganic, common in limestone rocks are often recognisable in the resulting cherts.

Contrasting the relative merits of flint and chert as road-stone, we see that the cherts are generally more suitable for this purpose, on account of their tougher nature, owing to which they do not so readily pulverise under traffic. This superior degree of toughness is exemplified by the use of chert for the purpose of grinding down the flints used in pottery mixtures. Their hardness, however, is slightly inferior to that of flint, and they do not so readily strike fire on percussion by steel or iron. The cherts, however, are much less widely distributed than flints. Their value, also, for grinding purposes tends to restrict their use for other purposes. In the limestone rocks the cherts often occur in large masses, which, even if they had no other more profitable use, would be difficult and costly to break up into macadam.

The chert of Sevenoaks, Kent, found in the Hythe beds of the lower greensand formation, is extensively used as road-stone over a considerable portion of the Wealden area under the name of Sevenoaks stone. In Surrey the same substance is known as "red flint," and in West Sussex it is sometimes called "whinstone," a name which must not be confused with the North of England igneous rocks already described, under the name of whinstone, in a previous article.

Gravels.—There is no rock so widely distributed or so variable in its nature as the loose accumulations of stones, sand, and other finely-divided matter which pass under the general name of gravel. From their mode of origin these deposits may be looked upon as residues derived from the disintegration of older formations, and the materials of which they are composed will naturally consist of the harder and more durable portions of their parent rocks. The most important from our present point of view are the flint gravels, which are widely spread over the country, even in localities far removed from the outcrop of the chalk formation from which the flints contained in them were derived.

The larger stones composing gravel beds will vary in shape according to the amount of mechanical attrition to which they have been subjected in the course of their accumulation. Thus we may distinguish *angular* gravels, in which the stones still retain the irregular form which they possessed when first liberated from their parent rock; *sub-angular* gravels, in which the stones have undergone a certain amount of rounding by attrition; and *pebble* gravels, in which they are completely worn into the more or less flattened ellipsoidal shapes common to beach deposits. Gravels, and more especially those which contain angular stones, may also be composed of an assemblage of rocks of very different kinds, including even fragments of igneous rocks, such as granite, syenite, or basalt, as well as the harder parts of stratified formations. These, known to the geologist as *glacial* gravels, occupy wide areas of ground at all altitudes, and having no connexion with the present systems of river drainage. Other gravels, on the other hand, occupy the river valleys, after forming well-defined terraces at considerable heights above the present level of the river floods. These contain chiefly such stones as occur in the rocks in the upper portion of the valley, and vary considerably with the geological structure of the district in which they occur.

In estimating the value of a gravel deposit as a source of road material, the following points should be noticed :—

1. *The Nature of the Stones.*—In flint gravels the flints are generally found in the toughened and weathered condition, especially if water-worn. As previously mentioned, however, some coarse and angular flint gravels contain large flints which are in an excessively rotten condition, and quite unfit to bear the pressure of traffic. These flints gradually toughen by exposure to the atmosphere, just as do those taken fresh from the chalk pit. Stones of other kinds occuring in gravels will possess the properties of the rocks to which they belong, as already described in former articles. When not of uniform hardness they will wear unequally and produce an uneven surface.

2. *The Size and Shape of the Stones.*—Angular stones, if not too large, are more adapted for macadam than those with more or less rounded outlines. Such stones, however, are generally very variable in size, and may be quite useless until broken up into smaller pieces. The stones of river gravels are usually more uniform in size and shape, but their rounded outlines are not so favourable to their binding into an interlocked mass when placed in a road. In coarse gravels large stones make up the chief part of the deposit, while fine gravels with smaller stones are often suitable only for footpaths and garden paths. When gravels contain a mixture of stones of all sizes they require separation by screening, and all stones above 1 in. in diameter must be broken.

3. *Nature of the Finer Material.*—The finer particles of gravel are usually sandy or clayey, often ferruginous, and sometimes even calcareous. The binding properties of gravels depend greatly upon the composition of the finer particles of the deposit. Sometimes the gravel is cemented into a compact mass by ferruginous matter, forming a kind of conglomerate known in some localities as ragstone or iron rag.

Superficial deposits occasionally contain hard concretionary masses of consolidated rock, forming useful material for roads. Of this nature is the Greywether sandstone, found in considerable quantities over the chalk districts of the south-eastern counties. The composition of these rocks has already been described under the head of sandstone, from which, however, they differ in not occurring in stratified beds, but in large isolated fragments. These are broken up and worked both for kerbs and macadam.

Shingle.—Shingle may be described as a coarse pebble gravel. Immense accumulations of rolled flint shingle, derived from the denudation of chalk cliffs, lie along the south coast of England, forming not only the present sea-beach, but occasionally preserved as a relic of former beaches at various heights above the present sea-level. The flints in these deposits are generally tough and durable, but they are so rounded by attrition that they have positively no binding power. They are extensively used, however, for the manufacture of concrete, and occasionally for macadam or for boulder pavements, although for the latter purpose they are too hard and smooth.

We have now had in review the most important of the natural rock substances used as road-stone, and have seen how their value is influenced by peculiarities both in mineralogical composition and mode of aggregation. We shall now, therefore, be in a position to follow the attempts which have been made to imitate the structure of these natural products by artificial means.

GENERAL BUILDING NEWS.

CHURCH, BRIDGTOWN, STAFFORDSHIRE.—The foundation-stone of a new church at Bridgtown, Cannock, was laid recently. The new building, which takes the place of an old iron structure, will accommodate 360 worshippers, and will cost about 2,000*l.* The builder is Mr. John Reynolds, of Cannock, who is carrying out the work from designs by Mr. Fred T. Beck, of Wolverhampton.

MISSION CHURCH, CANNICH, STRATHGLASS, N.B.—The new mission church erected at Cannich, Strathglass, has been opened by Dr. Norman MacLeod, of Inverness. The building occupies a site at the entrance to Glen Cannich. It was designed by Mr. John Robertson, architect, Inverness, and accommodates about 250 persons.

SUNDAY SCHOOLS, MOSBRO', DERBYSHIRE.—The foundation-stones of new Wesleyan Sunday Schools were laid at Mosbro' on the 2nd inst. Messrs. John Drabble & Bolsover Bros., of Mosbro', are the contractors, and Mr. John Wills, of Derby, is the architect.

CHAPEL AND SCHOOLS, OLD KENT-ROAD.—The new St. George's Hall and schools in the Old Kent-road were opened on the 7th inst. The architects were the late Professor Banister Fletcher and Mr. Banister F. Fletcher. An illustration and description of the building will be found in our issue of July 10, 1897.

DEAN CLOSE SCHOOL, CHELTENHAM.—The new dining-hall, dormitories, and infirmary recently erected at the rear of this school have just been opened. The contractors were Messrs. Collins & Godfrey, the work being carried out under the supervision of the architects, Messrs. Knight & Chatters. The building, which is connected with the main block by two wide corridors—one from the schoolhouse and the other from the kitchens—is of three stories, surmounted by a short tower or turret, and is similar in character to the rest of the block. The whole of the ground floor is occupied by the dining-hall, 82 ft. by 24 ft. It will seat 200 boys. The better "half" of the two stories above is devoted to the infirmary, which is kept distinct from the dormitories on the same floor, there being no communication between them, and separate staircases for each. The infirmary is provided with a lift situated near the kitchens, and there are on the first floor of the building five sick wards, most of them private, or accommodating only two patients, and one providing space for four or five beds. On the same floor are the nurses' kitchen and apartment, lavatory and bath accommodation, &c. The floor above is occupied by a sick ward, 46 ft. by 24 ft., with lavatory and other apartments adjoining, capable of accommodating twelve patients. On the other side of the building is, on the first floor, a dormitory, about 37 ft. by 24 ft., divided into a number of cubicles opening on a central corridor. A master's bedroom is portioned off at the entrance to the dormitory. Bath-room and lavatory accommodation adjoin. Above is another dormitory on the same plan; and, in addition, there are two private studies for prefects, while there is a third private study in the turret. The heating is throughout by hot-water pipes, and there is cellarage accommodation for the necessary apparatus, &c.

HOTEL, LEWISHAM.—The Salisbury Hotel, High-street, Lewisham, is being erected on the site of the old "Lion and Lamb." The architect is Mr. Albert L. Guy, of Lewisham.

WESTON-SUPER-MARE FREE LIBRARY AND MUSEUM.—The foundation-stone of Weston new free library and museum was laid on the 1st inst. The estimated cost of the whole building, as designed by Messrs. Hans F. Price and Wilde and Fry, joint architects, of Weston-super-Mare, will be 6,000*l.* The first section will consist of two stories, and will occupy an area of some 3,000 square feet. The ground-floor accommodation comprises a ladies'-room, librarian's-room, reading-room, lending and reference departments, and the entrance hall; also lavatory accommodation for both sexes. The museum and picture gallery will occupy the upper floor, and will be approached by a wide staircase. The building will have fire-proof floors and staircases. The materials employed in the structure will be local blue stone up to the plinth level, and red Cattybrook bricks relieved by freestone dressings and carvings. The contractor is Mr. Charles Addicott.

THE NEW SMALLPOX HOSPITAL FOR LEEDS.—The Sanitary Committee of the Leeds Corporation have adopted plans prepared by Mr. E. T. Hall, architect, London, for the erection of a smallpox hospital on the Killingbeck estate. The new institution will accommodate 104 patients—thirty each in three large pavilions, and seven each in two small isolation pavilions. It is estimated that the cost of the buildings will be 61,781*l.*

SEAMEN'S INSTITUTE, SUNDERLAND.—On the 31st ult. the foundation-stone was laid of a new wing of the Seamen's Institute, Sunderland. Messrs. J. Potts & Sons are the architects of the new buildings, and Messrs. R. Hudson & Son are the builders.

VILLAGE HALL, ALMONDBANK, PERTH.—A hall, capable of accommodating nearly three hundred persons, is to be erected at Almondbank, from the designs of Messrs. M'Laren & Mackay, of Perth.

EXTENSION OF A BOARD SCHOOL, ABERDEEN.—Contractors' tenders, for 3,500*l.*, have been accepted for extension of public school, Torry (Abbey-road), Aberdeen, according to plans by Mr. J. Ogg Allan, Architect and Master of Works to Aberdeen School Board.

TOWN HALL EXTENSION AT BLACKBURN.—The Sub-Committee appointed by the Blackburn Corporation to consider the proposed reconstruction of the Town Hall buildings have reported to the General Purposes Committee in favour of adopting the plan submitted some months ago by Mr. A. N. Bromley, architect, of Nottingham, who was commissioned by the Corporation to advise on the subject. The plans provide for the removal of the existing police headquarters and the extension of the buildings by the addition of a large assembly room on the market ground, now occupied by the poultry and vegetable market. The estimated cost, exclusive of the provision of a police station elsewhere, is about 40,000*l.*

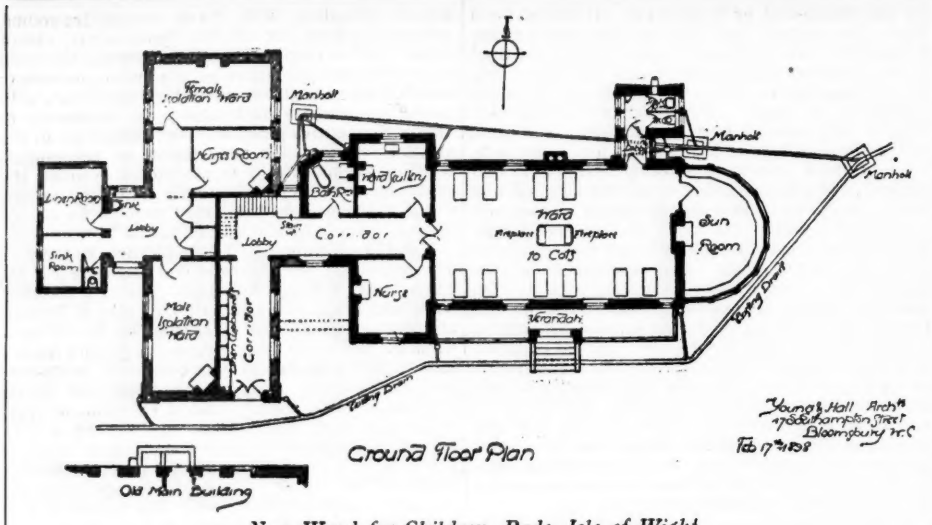
HOSPITAL FOR CROYDON.—At the Town Hall, Croydon, a few weeks since Dr. S. W. Wheaton, M.D., one of the Local Government Board Inspectors, held an inquiry relative to an application by the Croydon and Wimbledon Joint Smallpox Hospital Board for sanction to borrow the sum of 30,000*l.* for the purchase of a site at North Cheam, and for the erection of a small-pox hospital thereon. Messrs. R. M. Chart & Son, of Croydon, architects, explained the plans. The hospital is designed to accommodate forty-eight patients and the staff.

WALSALL'S NEW MUNICIPAL BUILDINGS.—The Walsall Town Council propose to expend the sum of 55,000*l.* on municipal buildings. At the next meeting of the Council the following resolution will be submitted for confirmation:—"That the report of the special committee appointed to make inquiries and report as to the character of the municipal buildings to be erected on the land fronting Lichfield-street, Leicester-street, and Darwall-street, be approved and adopted; and that the Council approve of the sum of 55,000*l.* being expended in erecting and furnishing a town hall, comprising council chamber, with three committee-rooms, municipal offices for all the departments, except police, and a large public hall or assembly-room capable of seating 1,500 people, with orchestra; and that the special committee be reappointed, with power to prepare instructions to architects to obtain competitive plans, to offer premiums to the amount of 500*l.* for such plans, to recommend which of the plans sent in should be awarded the premiums, and to employ such necessary professional assistance as they may require to enable them to form judgment on the matter."

Y.M.C.A. BUILDINGS, TOTTERDOWN, BRISTOL.—The memorial stones were laid recently of the Totterdown Y.M.C.A. buildings. The new buildings have been designed by Messrs. La Trobe & Weston, architects, and are being erected by Mr. William Church. They will comprise, on the ground floor, a lounge with entrance at the corner of Wells-road and Bushy Park. Opening out of this will be the secretary's office, library, and a refreshment room (connected with the kitchen upstairs by a lift); staircases will lead downwards to a large room in the basement for youths, and upwards to the other parts of the institute. From the lounge there will be also communication with the assembly hall. This hall, which is to have a long frontage to Bushy Park, will measure 60 ft. by 40 ft., will accommodate 600 persons, will have three entrances of ample width, and a large platform in a recess. Under this platform is to be a dressing-room for use in connexion with the hall when used as a gymnasium. At the back of the platform a retiring or committee room, with separate entrances, is to be provided. The ground floor is also to comprise a block of premises, which will be fitted by Messrs. Lloyds Banking Company, Limited, and opened as a branch bank. Along the whole front of the first floor, which is to be lighted by nine large windows, there will be a suite of rooms, connected with each other, and measuring together 70 ft. by 17 ft. These will be available for reading, lectures, small meetings, classes, &c. Another room, 13 ft. square, is intended for chess and draughts. On this floor are also the lavatory and bathrooms. On the second floor is to be a residence. The whole building will be warmed with hot water. The elevations will be in red brick, with freestone dressings.

PARISH ROOM, TUNBRIDGE WELLS.—The foundation stone has just been laid of Christ Church parish room, Tunbridge Wells. The new building, the architects for which are Messrs. Cronk, and for which Messrs. Strange are the contractors, is to be of white brick, to harmonise with the church, and will cost 1,199*l.* The parish room itself will be 55 ft. by 25 ft., with a class-room and kitchen at the rear. The class-room will have a covered approach to the church at the east end, and be used as a choir vestry.

NEW COUNTY ASYLUM, NOTTINGHAMSHIRE.—The corner stone was laid on the 25th ult. of the new asylum for Notts, which is being erected near Radcliffe under the auspices of the County Council. The building is to supersede the existing asylum on Carlton-road. Mr. E. P. Hooley, the County Surveyor, with whom Mr. Sanders is associated, prepared the plans from which the work is being done. The foundations were put in by Messrs. Fish & Sons, of Nottingham, at a cost of about 8,000*l.*, and the superstructure, for which Messrs. S. Pattinson & Sons, of Ruskington, Sleaford, are the contractors, is now being proceeded with. The site consists of 130 acres. The asylum will face due south, the total length of the main block being 800 ft. by 450 ft. Administrative accommodation will ultimately be provided for 600 patients, in addition to the officials, but at present arrangements are being made to accommodate only 450. The new asylum is to be constructed on the continuous block system, and the main entrance will be from the Cropwell-road. With the exception of the patients' and attendants' sleeping rooms the whole of the building consists of one story. The central portion is occupied by the administrative buildings, and includes a recreation-hall (87 ft. by 47 ft.), kitchens, stores, offices, &c. The patients' blocks are situated on the south side, those for the females being to the west, and those for the males to the east. There will be a space between the medical superintendent's house on the west side and the main buildings, the isolation hospital being placed still further to the west. In the chapel there will be seating room for 360 persons. It will have a floor of pitch-pine blocks, and the roof will also be of pitch-pine, covered with Staffordshire tiles. The workshops and laundry are at the rear of the female section. Several pairs of cottages will be erected for married attendants, and the existing farm buildings will be eventually converted into a farm colony for the working patients. The main block of buildings will be built of brick, with a slate roof; but the entrance block, which comprises a committee and visiting rooms, medical superintendent's room, clerk's, porter's, and waiting rooms, as well as a library and chaplain's room, will, with the chapel and medical superintendent's house, be of a more ornamental character. These portions are to be faced with pressed bricks and stone dressings. The interior of the patients' wards will have pitch-pine dados, with plaster above, while all the sanitary annexes, staircases, &c., will be lined with glazed bricks or tiles. The buildings are to be lighted by electricity, for which a complete plant will be laid down. The



New Ward for Children, Ryde, Isle of Wight.

heating is on the plenum system, which is being carried out by Messrs. Ashwell & Nesbit, of Leicester and London; and the water has been laid on from the Nottingham Corporation mains, a continuous fire main having been laid round the whole of the buildings. The contract for the superstructure amounted to 111,436*l.*, the total cost of the asylum being 130,000*l.*

NEW WARD FOR CHILDREN, RYDE, ISLE OF WIGHT.—The children's ward, erected as a memorial of the Queen's long reign, has been built in connexion with the block at the north end of the site, which until recently has been used for the reception of fever patients. The fever block has been altered to fit it for the purposes of isolation only. Two wards have been provided, one for males and one for females, with two nurses' rooms, movable bath, &c. A corridor on the east side gives access to the new ward. The new block contains, on the ground floor, entrance lobby, ward scullery, nurses' room, ward for ten cots, large sun room, and the necessary lavatory accommodation. The ward is 45 ft. long, 24 ft. wide, and 12 ft. high, giving 7 ft. 6 in. wall space, 90 ft. floor space, and 1,080 ft. cubic space per cot. A considerable area is also reserved for access to sun room and lavatory block. A verandah is placed on the south side with a glass roof, access to it being obtained from the ward. The sun room is placed at the east end, and is polygonal in form. The walls of the ward and sun-room are finished in Keene's cement, painted and varnished. The floor is of teak, in narrow widths, wax polished. The ward is warmed by means of Messrs. Teale & Somers' double ward stoves, with descending flues passing to the side wall. The sun-room is warmed by a Teale & Somers hob grate. The first floor contains three single rooms for nurses, a bath-room and water-closet, and also a linen cupboard. The outside is built in Binstead rubble walling, with Monks Park stone dressings, and the roof is covered with Bangor slates. A fine bust of the Queen by Mr. E. Onslow Ford, R.A., has been placed over the verandah entrance. The whole has been designed by Messrs. Young & Hall, of Bloomsbury, and carried out by Mr. Langdon, of Ryde. At the opening ceremony by the Queen recently the doors were opened electrically, the work for this being carried out by Mr. F. J. Coleby, of Manchester-square, W.; and the press-button, which was designed by the architects, of silver and ivory, with the enamelled inscription, "The Isle of Wight Commemoration 1839—1897," was made by Mr. Alexander Fisher, of Kensington, W.

NEW CEMETERY, DOUGLAS. — This cemetery, which has recently been completed, is laid out ready for interment. It is situated on the estate of Glencrutchery, about a mile from the centre of the town, on the Glencrutchery-road. The buildings have been erected from drawings prepared by Messrs. Huon A. Matear & C. Sydney Ingham, Liverpool, and carried out under the supervision of the late assistant surveyor to the Corporation, and latterly by the present surveyor, Mr. A. E. Prescott. Mr. C. Kay has been clerk of the works. Mr. Thomas H. Royston (Douglas) has had charge of the sandstone work, and Messrs. Abbot, of Lancaster, the stained-glass work. The contractor for the entire work has been Mr. Fred Callow, Douglas.

SANITARY AND ENGINEERING NEWS.

NORWICH CORPORATION DEPOT.—Colonel W. R. Slacke, R.E., an Inspector of the Local Government Board, held an inquiry, on the 25th ult., in Norwich Council Chamber, at the Guildhall, concerning an application by the Council for power to borrow 12,000*l.* for the provision of a depot, and for power to appropriate certain lands. The Town Clerk said the application was a threefold one. In the first place, they applied for sanction to the borrowing of 12,000*l.* for the construction of a depot, which was to consist of stables, cart sheds, stores, and workshops. In the second place, the Corporation sought approval of the appropriation of certain corporate land, and in the third place power to retain certain other lands in Lower Westwick-street. Mr. A. E. Collins, City Surveyor, produced plans and explained them to the Inspector. He said they wanted to make accommodation for fifty-two horses and provender stores, and for an increased quantity of rolling stock, to meet the needs of the future. It was proposed to have two workshops, one for the blacksmiths and one for the wheelwrights and carpenters. The existing silk mill would be utilised for the shops and stores.

THE MANCHESTER SHIP CANAL.—The Engineer's half-yearly report as to works states that the dredging operations in the canal and docks have been carried on continuously during the last half-year, and the depth of water has been fully maintained throughout. The diminution in the quantities of sludge brought down by the River Irwell and its tributaries, previously observed, has been continued, and the volume of material dredged from the docks has been somewhat reduced. On the other hand, the quantities of sewage matter brought down by the River Mersey have been distinctly increased. The foul condition of that river is at present very marked. The lay-bye and railway works at the Smelting Corporation site have been completed; the wharf constructed for that Corporation is also complete. The widening of the canal at the bend at the Weaver Mouth has been completed, and has facilitated the passage of large steamers. Operations are in hand for the protection of the banks of the Mersey against the erosion which has been taking place for some time, and through which large quantities of detritus have been brought down into the canal. A new wharf, together with a system of cattle docks, pens, and railway connexions, has been constructed for the Irish cattle trade on the north bank of the canal at Mode Wheel. New workshops and locomotive shed, with railway connexions and sidings, are in course of erection on land belonging to the company at Mode Wheel. The wharf erected for the Manchester and Liverpool Transport Company near Trafford Road Swing Bridge is nearly complete, and the necessary roads and railways are in progress. At Colnbrook Wharf the operations required for the removal of the rock for the deepening of the berth have been continued. Six new hydraulic cranes are being erected at the docks, and a number of new railway waggons and timber trucks have been constructed and are at work. Three large pontoons for timber and other traffic have been delivered at the docks, and a fourth is in progress and will shortly be launched. The embankments and slopes of the canal generally are in good condition, and the works throughout the canal have been efficiently maintained.

MANCHESTER WATER SUPPLY.—At a meeting of the Waterworks Committee, on the 3rd inst., it was stated that the amount of water consumed in Manchester on Wednesday was 39,891,634 gallons, being a reduction of nearly one million gallons, as compared with the previous day, when the consumption was greater than has been known in the history of the city. The Committee decided that it was desirable to take the opinion of Mr. G. H. Hill, consulting engineer, regarding the question of laying a second pipe from Thirlmere to Manchester. There is no actual necessity for this course being adopted at once, but there is such a gradually increasing demand upon the water supply that a greater store will shortly have to be drawn upon in order to keep pace with the consumption.—*Manchester Guardian.*

BRIDGE ACROSS THE TYNE, NEWCASTLE.—It is proposed to construct a bridge across the Tyne from Newcastle to Gateshead. The main roadway will be 33 ft. wide. The bridge will be constructed of steel, on the cantilever principle. The engineers are Messrs. Sandeman & Moncrieff, of Newcastle.

SEWAGE AND OUTFALL WORKS, CLAYTON, NEAR BRADFORD, YORKS.—These works, which have been constructed from the designs of Messrs. Waugh & Sons, were opened on the 29th ult. The sewage mains have been laid by Mr. R. Wood, of Bingley, and the tanks, which are of salt-glazed bricks, were built by Mr. J. Brigg, also of Bingley.

RECONSTRUCTION OF ROADS, LITTLE HULTON, LANCASHIRE.—On the 2nd inst. Mr. F. H. Tulloch, Inspector to the Local Government Board, opened an inquiry at Little Hulton into an application of the Urban District Council to borrow 11,105*l.* for the reconstruction of certain main roads in the township. Mr. C. C. Hooley, C.E., explained the nature of the works to be carried out.

SEWAGE DISPOSAL AT WALSALL.—The Sewerage Committee of the Walsall Town Council recommend that bacteria beds be constructed at Beechdale, for the purpose of treating the sewage on the bacteriological system, at an estimated cost of 750*l.*

STAINED GLASS AND DECORATION.

MEMORIAL WINDOW, HOLY TRINITY CHURCH, GRAZELEY.—A stained glass window has been placed on the north side of this church near the pulpit. The window was designed and executed by Mr. T. F. Curtis (Ward & Hughes) of London.

MEMORIAL WINDOWS, HORWOOD PARISH CHURCH, NEAR BARNSTAPLE. — Two memorial windows have been placed in the north wall of Horwood Church, in memory of a victim of the *Stella* disaster. The work was carried out by Mr. A. L. Moore, of London.

STAINED GLASS WINDOW, DUNBAR PARISH CHURCH.—A six-light stained glass window has just been placed in the centre of the apse of the Parish Church. The window was designed and executed by Mr. Edward Frampton, of London.

FOREIGN.

FRANCE.—The new international hospital, 180 Rue de Vaugirard, has just been opened.——M. Sauvageot is to commence almost immediately the work of restoration at the ancient church of St. Pierre on Montmartre. The cost is limited to 500,000 francs, half to be paid by the State and half by the Municipality of Paris.——The Municipality, at the request of the "Vieux Paris" Committee, is endeavouring to find some means of utilising the curious old building called the "Maison de la Reine Blanche," near the Gobelins, in order to ensure its preservation.——The remains of a Roman Theatre have been discovered at the village of André-sur-Cailly. —— An intercepting sewer is to be formed at Nice, under the Promenade des Anglais, and which is intended to take the sewage of Le Paillon. M. Arnaud is the engineer, and the work is to cost about 170,000 francs.——The new buildings for the Faculté de Médecine are to be ready for opening in November. They were commenced and nearly finished under M. Ginain, who was succeeded by M. Dupré as architect for the completion.——M. Hochereau, architect, has been commissioned by the Municipality of Paris to prepare a map of ancient Paris under the Roman occupation, especially in view of the 1900 Exhibition. The map will be prepared in accordance with the valuable documents collected by M. Vacquer, architect, formerly assistant-curator to the Carnavalet Museum, who had devoted his life to the study of this subject.——The death is announced, at the age of fifty-four, of M. Charles Lenoir, sculptor, and Director of the Art-School of Rennes.——M. Monier *fils*, architect, of Paris, has died at the age of twenty-nine.——The death is also announced, at the age of thirty-four, of M. Senèque, architect, son of the architect of the same name at Melun. He was a pupil of M. Moyaux at the Ecole des Beaux-Arts, and had taken part in the work for the 1889 Exhibition. He was "Inspecteur des Travaux" under the Municipality of Paris.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.—Mr. Mowbray A. Green, architect, has removed his offices from 1, Fountain-buildings, to 5, Princes-buildings, Bath.

MASTER BUILDERS AND CONTRACTS, CARDIFF.—At the monthly meeting of the Cardiff School Board on the 3rd inst., the Sites and Buildings Committee, referring to what had already taken place with reference to the extensions at the higher grade schools, and the construction of a bridgeway, reported as follows:—"The committee report that the Education Department have sanctioned the additional expenditure for the bridgeway and for the extras granted to Messrs. Lattey & Co. for the advance in the prices of materials. A letter, dated July 24, was read from Messrs. Lattey & Co., stating that they are bound by a resolution passed by the Cardiff Master Builders' Association on May 12 not to sign any form of contract other than that agreed to between the National Association of Master Builders and the Royal Institute of British Architects. A letter from the architect, commenting on the action of the builders, was also read. The clerk was directed to inform Messrs. Lattey & Co. that the committee are sur-

prised at their action at this late hour, and if they are not prepared to sign the board's contract form the contract will be let to someone else. The committee recommend that if Messrs. Lattey & Co. decline to sign the usual form, the contract be offered to the contractors next lowest on the list, viz., Messrs. E. Turner & Sons." The Chairman said that the point in dispute was that the Master Builders' Association contract would make the architect responsible for the quantities. Messrs. Turner & Sons had been approached, and they declined, whilst another firm had taken a similar course. Mr. T. Taylor proposed that the minutes should be adopted. Father Gibbon seconded, and said that the board ought to show that they were determined to demand the terms that they thought right and just. Dr. Wallace supported. The firm named, he said, had taken a rather unusual method in the matter. The board agreed. As to dealing with the work, the board decided to accept the tender of Messrs. E. R. Evans, at 4,057*l.* The original tender of Messrs. Lattey & Co. was 3,639*l.*

NEW PIER AND LAIRAGE, DEPTFORD MARKET.—The first pile of a new pier was driven and the foundation stones of a new lairage were laid at Deptford cattle market on the 31st ult. When the new jetty is completed there will be a river frontage of 900 ft. for the landing of cattle from the large Atlantic vessels. The contractors are Messrs. Rudd and Messrs. Kirk & Randall. The plans were prepared in the office of the City Surveyor, Mr. A. Murray.

REREDOS, HOLY TRINITY CHURCH, SOUTH SHIELDS.—A reredos has just been erected in this church. The panels are from the studio of Mr. C. E. Kempe.

CAPITAL AND LABOUR.

WELLINGBOROUGH BRICKLAYERS' STRIKE ENDED.—After lasting for over eight weeks the bricklayers' strike at Wellingborough has come to an end, the employers having agreed to the men's demands for an increased wage and a revision of the rules with especial reference to the regulation of the number of apprentices employed. So long ago as March last the local branch of the Amalgamated Society of Bricklayers gave notice to the employers of their wish for an advance in the minimum wage of the district from 7½d. to 8d. per hour, and also for an alteration of rules to limit the number of apprentices, but the employers declined to meet or discuss the matter with the men, although an intimation was conveyed to the employers that if the demand regarding the apprentices was conceded, that for an increase of wages would be foregone. On June 5, upon the expiration of the time given to the employers, the men came out on strike, the determination then being to adhere to the original demands sent in both for the increase of wage and altered rules.

THE PLASTERERS' DISPUTE.—DIFFICULTIES IN MANCHESTER.—Since the holding of national conferences in London with the object of settling the plasterers' strike, further differences have arisen in Manchester, and the men in this district have point blank refused to return to work until they are given an advance of 1d. an hour, which would make their wages 10d. an hour, and would bring the amount up to the maximum rate of wages paid in any part of England. At a recent meeting in London it was suggested that a compromise would meet the case, and the employers' delegate from Manchester on that occasion agreed to a compromise in the way of an advance of ½d. an hour, in the hope that that would settle the case, a hope that was strengthened by an expression of opinion from several of the operatives' delegates that the ½d. would be accepted. On Tuesday and Wednesday last week the representatives of the Manchester employers and operatives conferred together in this city once more. The operatives stated that they could not accept a ½d. advance in settlement of the dispute. Thereupon the employers made an amended offer of ½d. at once and a second ½d. at the end of twelve months. This the operatives' representatives positively declined to consider, giving it as the unanimous determination of their constituents to accept a 1d. or nothing. So the matter stands at the end of the twenty-second week of the strike. Although no rules have been broken as regards the plasterers' labourers, a letter was received by the employers' association from them, in which it was stated that they would not return to work until they received a ½d. an hour advance, making their wages 7d. Similar terms to those already named were offered to the labourers, in the form of an advance of a ¼d. now, to be followed by another ¼d. in a year's time, and the proposal in this case also has been absolutely declined. The whole matter will be laid before the Lancashire and Cheshire Federation and the National Association of Master Builders for them to deal with. Possibly the outcome of the present deadlock will be a general lock-out of plasterers.—*Manchester Weekly Times.*

MEETINGS.

WEDNESDAY, AUGUST 16.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

LEGAL.

CASE UNDER THE LONDON BUILDING ACT.

AT Lambeth Police-court on the 31st ult. George Davenport, a builder, of Camberwell, appeared to answer an adjourned summons taken out by the London County Council, who complained that he, on or about May 12, at Kennington Oval, unlawfully set up a structure to which the London Building Act applied, without having obtained the licence required by the Act. Mr. Thomas Chilvers, from the solicitors' department of the Council, who appeared in support of the summons, said that the proceedings had reference to a stand which was intended for the accommodation of spectators at the forthcoming test match between Australia and England. It was intended to accommodate between 400 and 500 people. No application was made to the Council for a licence in connexion with the erection of the structure. An examination of the structure was made by one of the Council's Surveyors, who was of opinion that it was not fit for the purpose for which it was intended. Since the adjournment of the case the stand had been made in conformity with the Act, and a licence would now be granted.—Mr. Armstrong, for the defendant, said he understood that the Council would be satisfied with a penalty of 40s. and 42s. costs. The defendant would be prepared to pay that sum.—Mr. Francis ordered the defendant to pay a fine of 40s. and 42s. costs.

ACTION BY A LIVERPOOL ARCHITECT:

HORNBLOWER *v.* BROCKLEBANK.

THIS was an action (at the Liverpool Assizes, before Mr. Justice Bigham and a Special Jury) by Frederick W. Hornblower, architect, of Liverpool, against Thomas Brocklebank, of Irton Hall, Cumberland, to recover 259*l.* as fees for the preparation of plans. The defendant denied liability on the ground that plans were to be prepared for buildings not to cost more than 1,000*l.*, but the plans sent in were useless, as they were for buildings to cost about 4,300*l.* Mr. M'Call, Q.C., and Mr. Sanderson were for the plaintiff; and Mr. Pickford, Q.C., and Mr. Horridge for the defendant. For the plaintiff it was stated that the defendant, a son of Sir Thomas Brocklebank, has a large estate in Cumberland, and, being desirous to erect a farmhouse and out-buildings on one of his farms, he consulted the plaintiff in January, 1898. The defendant, it was admitted, said the buildings were to cost about 1,000*l.*, and the drafting of the plans was commenced. Afterwards the plaintiff saw him at his offices in Bixteth-street, Liverpool, and explained that, as he (the defendant) desired the farmhouse to be built in a certain manner, the cost would be greater. Plaintiff completed the plans, and tenders were invited, these ranging from 4,300*l.* to 5,300*l.*; but the defendant said he never intended to have such expensive buildings, and as the plans were useless to him, he refused to pay the fees, which were 2½ per cent. on the lowest tender and 2½ per cent. for taking out quantities (1¼ of this latter sum going to the surveyor employed by the plaintiff). The plaintiff in his evidence maintained that some time after January he told the defendant that the buildings could not be erected at the sum first mentioned. In cross-examination he admitted that the 2½ per cent. for the plans should include the taking out of a specification, but this he did not take out.—The defendant stated that he told the plaintiff at the interview he wanted plans for a building to cost about 1,000*l.* The plaintiff never informed him that the cost would run into several thousands, and it was not until the tenders were sent in that he learned that fact. The rent of the farm was 120*l.* a year, and he would never dream of putting such expensive buildings on the land.—Mrs. Brocklebank corroborated the account of the interview, when the defendant said he did not wish to spend more than about 1,000*l.*—Towards the close of the case Mr. M'Call admitted there should be deductions from the claim; there should be an allowance of 2 instead of 2½ for the preparation of the plans, and a further deduction from the amount charged for the taking out of quantities.—The jury found for the plaintiff for 75*l.*—As there had been paid 100*l.* into court, his lordship gave judgment for the defendant.—*Liverpool Mercury.*

ANCIENT LIGHT DISPUTE AT SNOW HILL.

THE case of Dredge *v.* the London Central Markets Cold Storage Company, Limited, came before Mr. Justice North in the Chancery Division on the 4th inst., it being a motion by the plaintiff, the proprietor of the "Saracen's Head," Snow Hill, for an interlocutory injunction to restrain the defendants from so building as to obstruct the light and air coming to his premises.

It appeared from the statement of Mr. Henry Terrell, Q.C., who appeared with Mr. Ashton Cross for the plaintiff, that about twenty years ago an adjoining house, known as No. 71, Snow Hill, was added to the hotel. The lights of No. 71 were ancient lights, and amongst them was one lighting a basement, which, before it was added to the "Saracen's Head" was used as a shoemaker's shop. That light, it was said, was a most important one to the plaintiff, as what was formerly the basement was now used for the purpose of a stock-room, and as the "Saracen's Head" was largely frequented by commercial travellers it was necessary to have a large and light stock-room. The land on the opposite side of the road had been unoccupied for many years, but the defendant company had recently started to erect upon it large buildings adjoining the Meat Market for the purpose of cold storage, which the plaintiff contended would materially affect the light and air coming to his premises. The defendants disputed that the lights in question were ancient lights and that the proposed buildings would materially darken them.

In the result his Lordship held that the plaintiff had not produced any evidence of identity between the old basement window and the new one sufficient to perpetuate the old light. Looking at the position of things it seemed to him that, having regard to the light that came from the side opening, the plaintiff's lights would not be so materially interfered with as to justify him in granting an interlocutory injunction.

The motion was accordingly refused.

Mr. Badcock, Q.C., and Mr. Ingpen appeared for the defendants.

SEQUEL TO THE HULL BUILDING STRIKE.

MR. JUSTICE STIRLING, in the Chancery Division on the 9th inst., delivered judgment in the case of Walters and others *v.* Green and others on a motion by the plaintiffs, master builders, carrying on business in Hull, and members of the Hull Master Builders Association, to restrain until the trial the defendants, officials of various trades unions at Hull and also of a federation called the Hull Building Trades' Federation, from watching or besetting any railway station in Hull or elsewhere, or the works of the plaintiffs, or the approaches to any such station or works, or any place where any persons employed or about to be employed by, or working, or intending to work for the plaintiffs, or any of them resided or worked, for the purpose of persuading or inducing such persons not to work, or to abstain from working for the plaintiffs, or any of them, or for any other purpose than to obtain or communicate information. The facts were shortly these:—In the early part of the present year there was a labour dispute in the building trade at Hull, and in order to fill the places of men who had struck or had locked out, the plaintiffs imported men from Belfast, these men entered into contracts with an agent of the masters that they would go to Hull and work as non-union men for twelve months for such firms belonging to the Masters' Union as the Masters' Association should specify, and in other cases as a particular member of that body should specify. The plaintiffs alleged that the defendants having ascertained these facts, with the intention of injuring them and the other members of the Masters' Association in their trade and business and thereby compelling the plaintiffs and the other members of the Association to accept the terms of the unions, wrongfully combined and conspired together to watch and beset railway stations and other places where workmen brought to Hull by the Masters' Association or other non-union workmen might happen to be, for the purpose of persuading them not to work, or to cease working, for the plaintiffs, or any of them, or any other members of the Masters' Association, and did, in fact, persuade or induce many of such workmen to leave Hull, or refuse or cease to work for the plaintiffs or any of them, or any other member of the Masters' Association by reason whereof the plaintiffs were hindered, or interfered with, in the lawful conduct of their respective businesses, and had thereby respectively suffered serious loss and damage. A question was raised by the defendants' counsel on the hearing of the motion as to whether the action was properly constituted, having regard to the decision in the case of Sadler *v.* The Great Western Railway Company.

His lordship, in the course of an elaborate judgment, after stating the facts, held that the action was properly constituted as the statement of claim alleged that the defendants committed a series of illegal acts causing damage to the plaintiffs, which was, therefore, a joint cause of action clearly distinguishable from the case of Sadler *v.* The Great Western Railway Company. His lordship then considered the question whether there was any evidence that the defendants had been guilty of the acts complained of, and came to the conclusion that as regarded two of the defendants named Tighe and Emmerson, a case was made out against them of "attending" for the purpose of persuading or inducing men to abstain from working for the plaintiffs, and that what they had done went beyond what was allowed by the Act, viz., merely attending for the purpose of obtaining or communicating information. In the result, therefore, his lordship granted an injunction against these defendants, but refused it against the others

Mr. Upjohn, Q.C., and Mr. R. J. Parker appeared for the plaintiffs; and Mr. Stewart Smith, Mr. Crawford, and Mr. Hartley for the various defendants.

RECENT PATENTS:

ACCEPTED SPECIFICATIONS.

Open to Opposition until October 2.

[1898] 11,676, Evans, Apparatus for Washing and Purifying Gas. 11,943, Gimsons, Edge-setting and Polishing Machinery. 15,901, Pollock, Process and Machinery for Polishing Marble, Wood, Metal, &c. 16,079, Clayton & Ward, Gas Fire-grates. 16,217, Spence & Spence, Treatment of Sewage. 16,291, Levavasseur, Alternating Current Transformers. 16,299, Kohl, Alternating Current Interrupter for Induction Coils. 16,487, Legge [1899] 11,494, Hilberg, and 13,301, Goldbacher & Bournonville. Generation of Acetylene Gas. 16,598, Hoffmann, Apparatus for Purifying and Humidifying the Atmosphere in Factories, Workshops, and other Buildings. 16,670, Böhndel & Yeaton, Production of Illuminating and other Gas. 16,715, Steinmetz, and 19,959, Scott, Electrical Distribution. 16,871, Shiels, Coupling Arrangements for Connecting Electrical Wires. 16,972, McEwan, Jointing Boxes for Coupling-up and Insulating Electrical Wires. 17,230, Smith, Water-jacket for Acetylene Gas Generators. 17,762, Wollheim, Ornamental Veneers. 18,271, Weidlich, Portable Apparatus for Cooling, Moistening, and Purifying Air in Tunnels, Hospitals, Barracks, Factories, &c. 19,076, Lundbergs, Wall Connexions for Electrical Lighting. 19,102, Boas, Material for Wall Plaster, &c. 19,579, Butler, Magnesian Cement for Artificial Stone, &c. 19,618, Haglund, Door and other Locks. 20,100, Temple, Printing Designs upon Tiles, &c. 20,168, Armstrong, Buffers and Fittings of Automatical Tilting Tanks for Waste Water-closets. 20,227, Watson, Electrical Lamp Holders. 20,440, Davis & Conrad, Alternating Current Measuring Instruments. 20,538, Allcroft, Floor Covering. 20,758, Royer, Heating Apparatus for Buildings, &c. 21,952, Wegener, Furnaces for Consuming Household and Similar Refuse. 22,164, Eadie, Construction of Cupolas, &c. 22,475, Longmore, Circular-saw Guards. [1899] 5,054, Holdsworth, Bricks for Receiving Nails, &c. 5,226, Bedell & Welsby, Skylights. 8,237, Kingsmill, Rattling and Draught-preventing Device for Windows. 10,367, Grinhoff, Chimney-pots, Cowls, &c., for preventing Down-draughts. 10,423, Houston, Wash Basins, Bath Tubs, Water-closets, &c. 10,924, Pearson, Automatical Device for holding a door open. 11,458, Mitchell, Compressed-air Water-pumps or Elevators. 11,954, Lloyd, Brick Kilns. 12,163, Brophy, Supply of Hot or Cold Water in Bath-rooms, Lavatories, Pantries, and other places. 12,484, Bargamin & Batchelor, Automatical Cut-off Attachments for Gas-stoves. 12,663, Timm, Shaft, Kiln, or Furnace for Burning Lime, Cement, &c. 13,336, Culligan, Screw-wrenchers or Spanners. 13,404, Thomson, Electrical Lamps. 13,418, Hammerstein, Telephones, &c.

ABSTRACTS OF PATENTED INVENTIONS.

8,306.—WATER HEATERS: *W. Oliphant.*—The heater is fitted with a tank, burners, and a pipe-coil, into which water is admitted through a valve in the supply-pipe, that opens when the water is turned on, and, in opening, allows the gas to pass to the burners by means of a connexion between the gas supply valve and the valve of the water supply pipe; the burners are lighted by a pilot burner or a by-pass, and have baffle plates for distributing their flame.

8,319.—ELECTRODES: *K. Krebs.*—The moulds, of plastic materials, are destroyed (after the casting) by chemical agents, which reduce them either to spongy masses or into soluble compounds, which can be dissolved or removed; the cores are composed of various forms of perforated metal plates, or plates composed of baked earths containing metals, or of woven wire or pleated metal strips.

8,324. CANS FOR INFLAMMABLE LIQUIDS: *F. Lied.*—For closing the spout's inner end is contrived a valve that is pressed upwards by screwing a cap down on to the head of a rod at the end of a lever joined within the can to the valve which is opened by unscrewing the cap and so enabling a spring within the cap casing to lift the rod.

8,340. SIPHON DISCHARGE: *T. G. Rhodes & R. Gaunt.*—The starting piston is fitted with a rubber stud that strikes against the ends of the starting cylinder and thereby lessens noise; on a bracket screwed to the sides of the cistern are lugs in which the bell-crank starting lever is pivotted.

8,358. SLOW COMBUSTION STOVES: *F. J. Gould.*—Regulating dampers enable air to pass to a bottom chamber and thence through the grate and the fuel above it; over the fuel is placed a diaphragm having an opening that can be almost entirely closed with a damper, and through which fuel is supplied from a hopper; hot gases escape through a flue, and air can by admitted at will through the cover.

8,380. — FIRE-PROOF COMPOUNDS: *J. Stocker, H. Zauder, & W. Döblin.*—A solution is made of water—4 litres, and "fasersalz" (a salt with needle crystals found at Stassfurth)—400 grammes, then are added bicarbonate of soda and pulverised burnt alum—33⅓ grammes apiece, and 500 grammes of a solution containing silicic acid, potash, sulphate of strontium and talc; the compound is adapted for extinguishing fire, and also, with the addition of rice starch—30 grammes and sugar—5 grammes, for wetting the clothing of persons entering burning rooms, and for rendering uninflammable dress materials, fabrics, theatrical costumes, &c.

8,386.—LIFT VALVES: *G. O. H. Klopp.*—For valves wherein liquid supply is cut off by a hard ball upon the rising of the spindle, a ring limits the downward motion of a screwed spindle engaged by a stuffing-box which holds down a clamping-ring, which holds a washer in its place—when the washer is removed for its renewal, the ball seats itself against the casing, and when the ball is pressed down it rests within a hollow screwed cap; in another shape the valve is rendered self-closing by means of a quick screw-thread upon the spindle, a flange thereon limiting its motion upwards.

8,394.—LEAD PIPE-LININGS: *H. W. Davis.*—The hard metal pipe is cleaned and tinned, and the lead pipe, whose surface also is tinned, is placed either in or upon the other pipe, and forced into close contact with it; the composite pipe is heated to a temperature that will suffice to melt the tin without melting the lead.

8,415.—VENTILATION OF BUILDINGS, &c.: *K. W. P. Teale.*—On entering an inlet ventilator the air is directed downwards by bent tubes over the surface of oil or a similar suitable fluid which absorbs the dust that gradually sinks in the vessel containing the liquid.

8,439.—GENERATION OF ACETYLENE: *J. Stott.*—Carbide is laid upon a set of trays mounted upon a rod and placed in each of two or more generators fitted with gas-tight covers and waste-cocks and to be used in succession. A tank fitted with a filter and a ball-cock supplies water to a pipe and its branches to the bottom of the generators; in the pipe is a non-return valve which is closed by the excess of gas pressure over the head of water in the pipe, whereby the supply of water is cut off and escape of gas is prevented; a pipe conducts the gas from the generators to a condenser, whence another pipe conveys the gas to the holder, the water in which is driven up another pipe into an upper chamber. A safety escape pipe and a governor for the gas outlet are provided.

8,469.—GAS VALVES AND COCKS: *E. Knapp.*—The inventor's object is to provide means of turning off gas from a distance. A pawl, moved by pneumatic pressure, gives a step-by-step motion to a combined ratchet-wheel and disc valve, whose rotation brings holes alternately in and out of line with channels in a block in the gas-chamber's outlet, the gas is lighted by a pilot jet, pneumatic pressure is brought to bear upon the lever of the pawl by means of a piston or an expanding bag, which a spring afterwards forces into their original places.

8,499.—PAINTS AND PRESERVATIVE COMPOSITIONS: *A. B. Kittson & A. B. Browne.*—As a base for making the paints, magnetic iron oxide is used, sesquioxide of iron is ground and heated in a revolving vessel together with a reducing gas, say carbon monoxide, until it becomes reduced to the magnetic oxide, which is then separated and powdered, and the resulting black amorphous powder is mixed with oil, &c., for a black paint. The addition of chrome-yellow produces olive-green shades, and a small quantity of baryta, or zinc white, may be added if a slate-grey colour is required.

8,531.—LIFTS AND ELEVATORS: *T. A. Edison.*—Clamps, secured to endless wire ropes, carry the buckets. The clamps run upon smooth driving pulleys, and have convex bearing-surfaces. The ropes are tightened by arranging the bearings of one of the pulleys to slide upon guide-rods. In one modification each of the buckets has in its front face a hole, to be closed by the material accumulated on the platform or table, except over the holes through which the material is discharged.

8,551.—SAFETY SUSPENDING OR RETAINING APPARATUS: *R. C. Smith & J. Cruickshank.*—A rod joins a pivotted lever to an arm which is connected to the two arms of another lever, which terminate in projection so guided as to either strike or clear the clamps. The end of the first-named lever has a roller which engages with the guide-rail. The serrated inner surfaces of the clamps normally surround the upper parts of the suspended sideways, whose sectional area, below the clamps, is slightly enlarged. When the lift descends at a normal speed the attendant moves the lever to bring the roller into engagement with the cranked portion of the guide-rail, and the projections are drawn back, but if the lift falls, or descends too rapidly, he will not have time to retract the projections, which thereupon strike the clamps, driving them down on the slides, and the friction engendered gradually brings the parts to a state of rest.

8,575.—LOCKS AND KEYS: *Y. Solomon.*—The invention lies in the combination of two or more locks to be turned with separate keys or with a multiple key; the locks, especially made for safes and strong-rooms, are separated by a drill-proof plate which is perforated for the passage of the key, which may have its bits upon one stem.

8,600.—MACHINE FOR PLANING MITRES: *P. Campbell & Sons and R. Wilkinson.*—The mouldings are fixed upon slides with their outer ends laid against stops for adjusting the length, whilst their opposite ends are planed by irons in a slide that is reciprocated by a crank and a connecting rod, the slides being moved forwards by levers worked by a treadle; a pin and slot regulate the travel of the slides, and a screw and hand-wheel raise or lower the table.

8,627.—ROOFS: *H. J. Murat.*—Clips and caps, held down by other clips, secure the glass or metal plates, fashioned with ribs, to the astragals or rafters, which have side gutters and centra lribs slotted to receive the clips. By one method the sheets, with their edges bent to a semi-circular shape, are laid directly upon the flanges of the rafters; by another, their overlapping edges are joined together by ribbed metal clips, and packing strips, stiffened with metal strips or clamps, are laid between the sheets in order to prevent water from passing the joints. Or a roof may be constructed of metal plates, stiffened by undulations or corrugations, and laid upon fillets fixed on to a wooden roof, so as to make air spaces to prevent the passage of heat.

8,658.—ODOMETERS: *J. H. Whiting.*—The movement of the axle of the wheels is given by bevel-wheels to a shaft carried in a yoke that slides lengthwise with the axle, and due provision is made for both horizontal and vertical play by means of universal joints and by the shaft entering a sleeve, or by a flexible connexion; a wheel at the top of the shaft turns another wheel, whose flange is slotted to engage with pins on a disc upon another shaft, the slots being so inclined that on reversal of the direction of motion the shaft slides lengthwise and engages a clutch with that one of two wheels which was out of gear before, the two wheels gearing with another, which is, therefore, always driven in the same direction, and moves a counter through the top shaft.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

July 18.—By W. R. NICHOLAS & CO. (at Reading).

Bradfield, Berks.—The Bradfield Hall Estate (remaining portion), about 45 acres, f. (in lots) ..	£2,920

July 21.—By A. C. LOVEYS (at Exeter).

Doddiscombsleigh, Devon.—Five fields, 13 a. 2 r. 1 p., f.	250
Three cottages and 4 a. 2 r. 18 p., f.	390
Warren Down, 33 a. 3 r. 38 p., f.	425
Faraways, and 45 a. 3 r. 5 p., f.	500

July 21.—By FERRIS & PUCKRIDGE (at Stroud).

Painswick, Gloucester.—The Flock Mill Estate, 66 a. 1 r. 34 p., f.	2,650
Cranham, Gloucester.—Wateredge Farm, 53 a. 2 r. 0 p., f.	420
Painswick, Gloucester.—An enclosure, 12 a. 2 r. 17 p., f. and c.	210

July 22.—By W. G. JAMES (at Haverfordwest).

Whitchurch, Pembroke.—Tresais Farm, 61 a. 0 r. 13 p., f.	1,350
Caer-Farchell Farm, 14 a. 1 r. 12 p., f.	680

By SALTER, SIMPSON, & SONS (at Norwich).

New Buckenham, Norfolk.—The Rookery Farm, 310 a. 1 r. 13 p., f.	5,000
Fifteen common rights on New Buckenham Common	£375

July 24.—By CLIMPSON & JOHNSON.

Tooting.—40, Trinity-rd., u.t. 80 yrs., g.r. 10*l.* e.r. 50*l.*	350
Balham.—Ormeley-rd., f.g.r.'s 22*l.*, reversion in 90 yrs.	580
Laitwood-rd., f.g.r. 44*l.*, reversion in 90 yrs.	1,140

By A. P. CLEAR.

Tolleshunt D'Arcy, Essex. — Spittles, Salcoat Stone, and Profits Farms, 149 a. 2 r. 24 p., f. and c.	1,900
Latchingdon, Essex.—Butterfields Farm, 205 a. 0 r. 24 p., f.	2,500
The Manor of Lawling Hall, with its rights and privileges	390
Janews and Perkins Farm, 38 a. 3 r. 0 p., f.	275
Sharpes Farm, 77 a. 1 r. 32 p., c.	775
Purleigh, Essex.—Home Green Farm, 101 a. 2 r. 18 p., c.	1,175
Foulness Island, Essex.—Great Burwoods Farm, 389 a. 1 r. 24 p., f.	1,800
Little Burwoods Farm, 125 a. 0 r. 21 p., f.	625

By DUNN, SOMAN, & COVERDALE.

Pentonville.—283, Pentonville-rd., u.t. 62 yrs., g.r. 10*l.*, r. 250*l.*	4,000
284 to 294 (even), Pentonville-rd., u.t. 71 yrs., g.r. 500*l.*, r. 1,525*l.*	20,650

By FIELD & SONS.

Old Kent-rd.—6, 8, 9, and 11, Ethnard-rd., u.t. 64 yrs., g.r. 24*l.*	1,250
Newington Causeway.—3 and 4, Dorset-st., u.t. 10 yrs., g.r. 8*l.* 8s.	105
Kennington.—353, Kennington-rd., u.t. 32 yrs., g.r. 7*l.* 6s., r. 60*l.*	455

By G. B. HILLIARD & SON.

Dagenham, Essex.—15, 16, and 17, Station-rd., u.t. 82 yrs., g.r. 9*l.*	180

By E. HOLSWORTH.

Shoreditch.—16 and 18, Weymouth-ter., f., r. 102*l.*	1,570

By NORRIS & DUVAL.

Bengoe, Herts.—Bengoe Grange and 1 a., f., r. 75*l.*	1,320

By C. & H. WHITE.

Brixton.—58, Kellatt-rd., u.t. 74 yrs., g.r. 6*l.* 6s., r. 39*l.*	330
Clapham.—9, 18, and 19, Alderbrook-rd., u.t. 78 yrs., g.r. 24*l.*, r. 124*l.* 10s.	1,125
2, Lysias-rd., u.t. 78 yrs., g.r. 8*l.*, r. 50*l.*	445

By CASTIGLIONE & GIBBINGS (at Carlisle).

Aikton, &c., Cumberland.—Wampool Farm, 234 a. 3 r. 37 p., f.	4,500
Bromfield, Cumberland.—Wheyrigg Farm, 202 a. 0 r. 35 p., f.	5,000
Castle Sowerby, Cumberland.—Sowerby Mill and 8 a. 2 r. 38 p., f.	550

By C. F. MOORE (at Cirencester).

Poulton, Gloucester.—A house and shop, with farmhouse and 2 r. 20 p., f.	400

By J. H. BETHELL (at Manor Park).

South Wanstead.—Wanstead Park-avenue, &c., 117 plots of building land, f. (in lots)	9,482

By HOLLIS & WEBB (at Selby).

Burn, &c., Yorks.—Primrose Hill Farm, 148½ a., f.	4,850

July 25.—By ARTHUR BARTON.

Lee.—136, Burnt Ash Hill, u.t. 65 yrs., g.r. 13*l.*	550

By BURLEY & BRACKENBURY.

Richmond, Surrey.—36 to 42 (even), Battenburg-road, u.t. 97 yrs., g.r. 14*l.*, r. 104*l.*	840

By C. W. DAVIES & SON.

Pimlico.—74, Ebury-st., u.t. 23½ yrs., g.r. 9*l.*, r. 120*l.*	1,125
Dalston.—103a, Dalston-lane, u.t. 83 yrs., g.r. 12*l.* 10s.	300
Caledonian-rd.—35 and 57, Bemerton-st., u.t. 41 yrs., g.r. 16*l.*, r. 60*l.*	500
Portman-sq.—73, George-st., and 22, Portman-Mews North, u.t. 28¼ yrs., g.r. 30*l.*, r. 210*l.*	2,175
Holloway.—51 and 53, Blenheim-rd., u.t. 94½ yrs., g.r. 12*l.* 12s.	500

By DEBENHAM, TEWSON, & CO.

Bishopsgate.—10 and 11, New-st., f., r. 318*l.*	7,100
Limehouse.—82 and 84, Rhodeswell-rd., f.	480
Bromley-by-Bow.—38 and 40, St. Leonard's-av., f.	440
Shooter's Hill, Kent.—Summer Court and 4 a. 3 r. 36 p., u.t. 65½ yrs., g.r. 65*l.*	2,250
Norbury.—Pollard's Hill South, freehold building land, area 2½ acres	700

By FLINT & PITT.

Marylebone.—33, Ridinghouse-st., u.t. 47½ yrs., g.r. 12*l.*, e.r. 90*l.*	845

By FURBER, PRICE, & FURBER.

Lambeth.—19 and 20, Royal-st., u.t. 25 yrs., g.r. 4*l.*	505
Wormley, &c., Herts.—The Boundary House and 5 a. 0 r. 26 p., f., r. 90*l.*	2,250

By J. HORATIO HIBBARD.

Holloway.—183, Junction-rd., u.t. 57 yrs., g.r. 4*l.*, e.r. 65*l.*	800

By MAY & PHILPOT.

Clapham.—8, North-rd., u.t. 41 yrs., g.r. 8*l.*	500

By GEORGE RAVENSHEAR.

Ealing.—Somerset-rd., &c., a freehold building estate, area 11 a. 1 r. 12 p.	8,700

By ROGERS, CHAPMAN, & THOMAS.

Pimlico.—31, Cumberland-st., u.t. 34½ yrs., g.r. 8*l.*, r. 65*l.*	555
51, Westmoreland-st., u.t. 30¾ yrs., g.r. 8*l.*, r. 46*l.*	370
95, Lillington-st., u.t. 26½ yrs., g.r. 6*l.*, r. 46*l.*	360
2 and 3, Skinner-st., u.t. 22 yrs., g.r. nil	315

By TOMLINSON & CO.

Hammersmith.—171 and 173, Hammersmith-rd. West, also "The Prince of Wales" b.-h., f., r. 105*l.*	4,000

By Messrs. COBB (at Ashford).

Brabourne, &c., Kent.—Hemminge Farm, 54 a. 1 r. 35 p., f. (including the Manor of Hemminge)	1,250
Wye, Kent.—Luckets Enclosures, 32 a., f.	1,400
Two enclosures, 27 a. 3 r. 24 p., f.	600

By WATERS & RAWLENCE (at Salisbury).

Bishopstone, Wilts.—Throope Farm, 348 a. 2 r. 4 p., f.	3,000

By RICHARDSON & TROTTER (at York).

Husthwaite, Yorks.—The Highthorn Estate, 99 a. 3 r. 38 p., f. and c.	6,000

By ROBINS & HINE (at Watford).

Watford, Herts.—173 and 175, High-street, f., r. 70*l.*	1,820
Water lane, freehold building land	630

By C. R. MORRIS, SONS, & PEARD (at Langport).

Kingsbury Episcopi, Somerset.—Thorney Mills, residence, and 9 a. 3 r. 6 p., f. £1,950
Farmhouse and 24 a. 1 r. 22 p., f. 1,200
Higher Burrow Farm, 25 a. 1 r. 4 p., f. 1,335
Various enclosures, 62 a. 3 r. 4 p., f. 3,612
Curry Rival, Somerset.—Enclosures of land, 19 a. 1 r. 10 p., f. 803

By MORRIS, MARSHALL, & POOLE (at Newtown).

Berriew, &c., Montgomery.—Cefngwernfa Farm, 177 a. 2 r. 28 p., f. 2,000
Mochdre, &c., Montgomery.—The Old Neudd Farm, 57 a. 1 r. 38 p., f. 1,100
Hendrill and 22 a. 3 r. 34 p., f. 660
Kerry, Montgomery.—Old Neuadd Bank, Sheep Walk, 144 a. 1 r. 10 p., f. 600

By FLEURET, SONS, & ADAMS (at Masons' Hall Tavern).

Henley-on-Thames, Oxon.—"The Royal" Hotel, f., with goodwill 7,610
July 26.—By DEBENHAM, TEWSON, & CO.
Charing Cross.—25, Cockspur-st., area 1,265 ft., u.t. 72½ yrs., g.r. 950*l.*, e.r. 1,500*l.* 7,100
Tooting.—High-rd., Hampton House, u.t. 36 yrs., g.r. 12*l.* 1,600
Edgware-rd.—Church-st., "The Duke of York" p.-h., a mortgage debt of 9,000*l.* at 5 per cent. 8,550

By PHIBBS GIBSON & CO.

Norwood.—71, Thurleston-rd., f., e.r. 40*l.* 500
Herne Hill.—9, Hawarden Grove, u.t. 97 yrs., g.r. 7*l.* 7*s.*, e.r. 45*l.* 430

By HAROLD GRIFFIN.

Battersea.—30, Wayford-st., u.t. 76 yrs., g.r. 5*l.* .. 215
Ingrave-st., l.g.r. 19*l.*, u.t. 50 yrs., g.r. nil. 395
91, Winstanley-rd., f., r. 40*l.* 560

By BAXTER, PAYNE & LEPPER.

Darenth, Kent.—Two enclosures of land, 22 a. 3 r. 33 p., f. 800
An enclosure of hop land, 12 a. 2 r. 5 p., f. 410
Stone, Kent.—An enclosure of marsh land, 7 a. 1 r. 34 p., f. 310

By G. H. MASTERMAN & CO.

Forest Gate.—216 and 216a, Romford-rd., f., r. 90*l.* 1,705

By E. W. RICHARDSON & SON.

Belgravia.—35, Eccleston-sq., u.t. 27½ yrs., g.r. nil., r. 150*l.* 2,020

By C. SPARROW & SON.

Finchley.—Woodside-lane, Meadowhurst, and ½ a., f. 1,410
Woodside-lane, Cairnryan and Stalheim, u.t. 81½ yrs., g.r. 16*l.*, r. 105*l.* 1,420

By R. TIDEY & SON.

City-rd.—51, Westmoreland-pl., f., r. 28*l.* 360
Hoxton.—240 and 242, New North-rd., u.t. 19 yrs., g.r. 7*l.* 16*s.*, r. 65*l.* 355
4, Bracklyn-st., u.t. 30 yrs., g.r. 7*l.*, r. 26*l.* 185
8 and 10, Bracklyn-st., also l.g.r. 3*l.*, u.t. 8½ yrs., g.r. 9*l.*, r. 62*l.* 200
Victoria-pk.—38 and 40, Rothbury-rd., u.t. 60½ yrs., g.r. 8*l.* 10*s.* 285
De Beauvoir Town.—100, De Beauvoir-rd., u.t. 22¼ yrs., g.r. 4*l.* 10*s.*, r. 36*l.* 275

By DOUGLAS, YOUNG, & CO.

South Kensington.—23, Redcliffe-gdns., u.t. 49½ yrs., g.r. 20*l.*, r. 90*l.* 900
Streatham.—31, Gleneldon-rd., f., r. 42*l.* 620
Forest Gate.—130 and 132, Whyteville-rd., f. 640
Norwood.—66 and 68, Harrington-rd., u.t. 68 yrs., g.r. 10*l.* 385

By A. DOWELL (at Edinburgh).

Duddingston, Edinburgh.—Duddingston Brewery 30,000

By WILLIAM WESTON (at Harrow-road).

Westbourne Park.—73, Acklam-rd., u.t. 67 yrs., g.r. 7*l.* 335

By BAXTER, PAYNE, & LEPPER (at St. Mary Cray).

St. Mary Cray, Kent.—Derry Downs, Beech Villa, f., r. 25*l.* 350

By WALTER PYE (at Hereford).

Allensmore, Hereford.—Mawfield Farm, 139½ a., f. 3,750
Clehonger, Hereford.—Two cottages and 2½ a., f. 260

By E. BAILEY & SON (at Newark).

South Scarle, Notts.—A freehold farm, 139 a. 1 r. 16 p. 3,500
Swinderley, &c., Lincs.—Enclosures of land, about 20 acres, f. 765

By MABBETT & EDGE (at York).

Crayke, &c., Yorks.—The Crayke Hall Estate, 530 a. 0 r. 8 p., f. (in lots) 17,134

By DRAWBRIDGE & ANSELL (at Burgess Hill).

Burgess Hill, Sussex.—Virginia House, and Blacksmith's and cycle premises, c. r. 30*l.* 410
1 and 2, Gordon-cottages, f., r. 26*l.* 325
1 to 6, Fairfield-rd.-cottages, f. 595

July 27.—By DRAWBRIDGE & ANSELL (at Brighton).

Dane Hill, Sussex.—Holly Hall and 10 a. 3 r. 22 p., f. 900
Horsted Keynes, Sussex.—"The Crown Inn" and 2 r. 29 p., f. 3,150
Bordelands and Pype Close, 5 a. 3 r. 18 p., f. 500
Leamland Estate, 78 a. 0 r. 13 p., f. 3,000
Leamland Cottage and 5 a. 2 r. 20 p., f. 315
Cinder Hill Field and New Mead, 9 a. 1 r. 14 p., f. 290

By SIMMONS & SONS (at Henley-on-Thames).

Waltham St. Lawrence, Berks.—Six cottages and 2 a. 0 r. 24 p., f. 800
House and shop and 1 r. 17 p., f. 300
An enclosure and pond, 2 a. 1 r. 38 p., f. 375
Moat Meadow, 12 a. 1 r. 34 p., f. 565
Rogers' Platt, and a strip of land with cottage, 3 a. 0 r. 1 p., f. 213
Crockford's Copse, 2 a. 3 r. 24 p., f. 100
Bull's Croft, 9 a. 0 r. 11 p., f. 400
Giles' Innings and Auken's enclosures, 20 a. 0 r. 9 p., f. 525

By W. T. BALLS (at Lowestoft).

Pakefield, &c., Suffolk.—A farm, area 146 a. 2 r. 5 p., f. and c. 3,500
The Kirkley Run, 52 a. 1 r. 13 p., f. 2,000
A freehold farm, 55 a. 2 r. 2 p. 1,900
Enclosures of arable, 9 a. 0 r. 29 p., f. 240
London-rd., &c., 35 building plots, f. 1,102
A messuage in three tenements, f. 220
Kirkley, Suffolk.—The Elms Farm, 34 a. 1 r. 12 p., f. 2,000
An enclosure of meadow, 1 a. 1 r. 8 p., f. 140
A freehold building estate, 24 a. 0 r. 12 p. 1,800
London-rd., &c., 31 building plots, f. £1,820
Carlton Colville, Suffolk.—Enclosures of land, 4 a. 3 r. 18 p., f. 280
A freehold farm, 26 a. 1 r. 24 p. 900
Kirkley, Suffolk.—Victoria-rd., &c., a range of stabling, f. 1,350

By G. ERNEST CLARKE.

Walthamstow.—Westbury-rd., seven residences; also 203, 205, 207, and 209, High-st., u.t. 91 yrs., g.r. 100*l.* 2,250
Campbell-rd., &c., two plots of building land, f. 235
7, 8, 9, and 10, Elm-rd., f. 905

By E. H. HENRY.

Fulham.—6 to 20 (even), Dymock-st., u.t. 98 yrs., g.r. 48*l.* 2,200

By LEVENS, SON, & HOARE.

Orpington, Kent.—1 and 2, Acacia Villas, f., r. 52*l.* 500
1, 2, 3, and 4, Mead Villas, f., r. 100*l.* 8*s.* 990
St. Mary Cray, Kent.—1 to 5, Mary Ann-ter., f., r. 75*l.* 1,800
5, 6, and 7, Providence-pl., f. 460
1 to 5, Williams-pl., f., r. 67*l.* 9*s.* 1,110
Williams-pl., f.g.r. 12*l.*, reversion in 14½ yrs.... 890
1 and 2, Anna Maria-cottages, f. 600

By NEWBON, EDWARDS, & SHEPHARD.

Islington.—Liverpool-rd., f.g.r. 6*l.*, reversion in 9½ yrs. 1,280
140, Liverpool-rd., f., r. 50*l.* 700
Regent-st.—12, Foubert's-pl., f., r. 100*l.* 2,400
Marylebone.—96, Cleveland-st., f., r. 40*l.* 880
128, 130, 132, and 134, Cleveland-st., f., r. 187*l.* 10*s.* 4,120
Bayswater.—21, Queen's-rd., u.t. 12 yrs., g.r. 5*l.*, r. 80*l.* 455
1, 2, and 3, Inverness-pl., u.t. 49 yrs., g.r. 24*l.*, r. 205*l.* 2,250
Camden Town.—169 and 171, Arlington-rd., u.t. 20 yrs., g.r. 16*l.* 16*s.*, r. 120*l.* 910
Canonbury.—44 to 50 (even), Canonbury-rd., u.t. 19 yrs., g.r. 84*l.* 15*s.*, r. 200*l.* 800
Tottenham.—134 to 146 (even), Markfield-rd., u.t. 86 yrs., g.r. 29*l.* 8*s.* 700
Kingsland.—27, John Campbell-rd., u.t. 68½ yrs., g.r. 6*l.*, r. 30*l.* 360
Forest Gate.—165, Ham Park-rd., u.t. 79½ yrs., g.r. 6*l.* 10*s.*, r. 30*l.* 355
21, Khedive-rd., f., r. 28*l.* 360

By SIM & RANDALL.

Catford.—22, Queen's Gardens, u.t. 996 yrs., g.r. 5*l.* 18*s.*, r. 48*l.* 650

By J. A. & W. THARP.

Lambeth.—24 and 26, Lambeth Walk, u.t. 86 yrs., g.r. 40*l.* 260

By G. TROLLOPE & SONS.

Belgravia.—79, Eccleston-sq., u.t. 16½ yrs., g.r. 50*l.*, r. 220*l.* 1,585
9, Berwick-st., u.t. 16½ yrs., g.r. 15*l.*, r. 75*l.* .. 350

By DANIEL WATNEY & SONS.

Lympne, &c., Kent.—Belle Vue Farm, 294 a. 1 r. 22 p., f. 7,000
Berwick's enclosure, 51 a. 3 r. 26 p., f. 700
Aldington, &c., Kent.—Enclosures of land and two cottages, 154 a. 0 r. 36 p., f. 5,000

By C. P. WHITELEY.

Tunbridge Wells, Kent.—Mount Pleasant-rd., Belvedere House, area 36,254 ft., f., r. 200*l.* .. 5,600

By WOOTTON & GREEN.

Kensal Green.—44 and 46, Mortimer-rd., u.t. 90 yrs., g.r. 11*l.* 715

By FAREBROTHER, ELLIS, & CO.

City of London.—69 and 71, Bishopsgate-st. Without, f. 6,850
Bloomsbury.—57 and 59, New Oxford-st., u.t. 27½ yrs., g.r. 60*l.*, r. 360*l.* 3,900
237, Shaftesbury-av., u.t. 27½ yrs., g.r. 20*l.*, r. 120*l.* 1,300
Fulham.—Dimsdale-rd., f.g.r. 5*l.* 10*s.*, reversion in 68 yrs. 145
Kentish Town.—87 and 89, Highgate-rd., u.t. 52 yrs., g.r. 26*l.*, r. 86*l.* 850
West Wickham, Kent.—Grosvenor-rd., a plot of building land, f. 240

By J. E. FISHER.

Hornsey.—53, Howard-rd., f., r. 35*l.* 425
Stoke Newington.—45, Broughton-rd., u.t. 65 yrs., g.r. 5*l.* 5*s.*, r. 36*l.* 415

By STIMSON & SONS.

Walworth.—113, 115, and 119, Walworth-rd., u.t. 55 yrs., g.r. 69*l.*, r. 275*l.* 3,820
124, Westmoreland-rd., u.t. 53 yrs., g.r. 6*l.* 360
Brixton.—125, Loughborough Park, u.t. 23 yrs., g.r. 16*l.*, e.r. 125*l.* 500
Southwark.—31 to 39 (odd), Bittern-st., u.t. 19 yrs., g.r. 32*l.* 10*s.* 1,620
Margate, Kent.—St. Peter's-rd., Beauvoir House and Benyon House, f., e.r. 100*l.* 885
Peckham.—24, Harder's-rd., u.t. 54 yrs., g.r. 6*l.* 10*s.*, e.r. 32*l.* 215
86, Clayton-rd., u.t. 75 yrs., g.r. 5*l.*, r. 28*l.* 310
Willesden.—Queen's-rd., f.g.r. 16*l.* 16*s.*, reversion in 92 yrs. 450
Brixton.—25 to 31 (odd), Speenham-rd., u.t. 82 yrs., g.r. 31*l.*, r. 176*l.* 1,600
Wandsworth.—42 and 44, Bennerley-rd., f., r. 68*l.* 930
Battersea.—70, 72, 75, and 77, Meyrick-rd., u.t. 47 and 49 yrs., g.r. 16*l.* 825
1, 2, and 3, Lubeck-st., u.t. 47 yrs., g.r. 13*l.* 555
Andoe-road., the Railway Guard-yd., u.t. 47 yrs., g.r. 2*l.*, r. 100*l.* 1,200

By S. & G. KINGSTON (at Holbeach).

Whaplode, &c., Lincs.—A freehold farm, 208 a. 3 r. 20 p. 9,050

July 28.—By DAVID J. CHATTELL.

Chislehurst, Kent.—Lubbock-rd., &c., a corner plot of building land, 0 a. 1 r. 35 p., f. 320

By E. HILL-CLARKE.

Teddington, Middlesex.—4, Stanley-ter., u.t. 79 yrs., g.r. 7*l.* 10*s.*, r. 26*l.* 225

By GODWIN, BASLEY, & ELDRIDGE.

Pimlico.—42, Gloucester-st., u.t. 32 yrs., g.r. 11*l.*, r. 80*l.* 700

By HARDS & BRADLY.

Greenwich.—Ashburnham-rd., i.g.r. 16*l.* 4*s.*, u.t. 48 yrs., g.r. 5*l.* 160
Erith, Kent.—South-rd., f.g.r. 5*s.*, reversion in 49½ yrs. 140

By HERRING, SON, & DAW.

Streatham Hill.—Main-rd., The Elm and two-thirds of an acre, f. 3,200
Brixton Hill.—Main-rd., Florence Lodge, f., r. 100*l.* 1,850
Wimbledon.—180, Hartfield-rd., f., r. 30*l.* 565

By G. W. & H. G. POTTER.

Hampstead.—2 and 3, Hampstead-green, area 1½ acres, f. £7,500
26, Church-row, f., r. 112*l.* 2,000

By A. J. SHEFFIELD.

Southend, Essex.—York-rd., Woburn House, f., r. 65*l.* 1,100
Millwall.—34, 36, and 38, Havannah-st., u.t. 41 yrs., g.r. 6*l.* 430
40, Havannah-st., with yard and stabling, u.t. 41 yrs., g.r. 10*l.*, r. 100*l.* 1,000
42 to 60 (even), Havannah-st., u.t. 55 yrs., g.r. 30*l.* 1,840
Walthamstow.—34 to 40 (even), Hazelwood-rd., u.t. 80 yrs., g.r. 16*l.* 16*s.* 680
Poplar.—128, Kerbey-st., f. 365
Canning Town.—307, Victoria Dock-rd., f. 345

By TOWERS, ELLIS, & CO.

Maida Hill.—23, Blomfield-rd., u.t. 44 yrs., g.r. 14*l.* 685
Paddington.—11, Harrow-rd., u.t. 26½ yrs., g.r. 40*l.*, e.r. 40*l.* 515
Clapton.—26, Upper Clapton-rd., u.t. 51 yrs., g.r. 8*l.* 8*s.*, with goodwill, fixtures, &c. 480

By VENTOM, BULL, & COOPER.

Canning Town.—Freemasons'-rd., &c., a freehold building estate, area 7 a. 5,410

By VERNON & SON (at High Wycombe).

Stokenchurch, Bucks.—Studley Green Farm, 91 a. 1 r. 20 p., f. 1,675
Great Kingshill, Bucks.—A copyhold holding, 3 a. 1 r. 19 p. 215
Enclosures of meadow, 4 a. 2 r. 11 p., f. 290
A building plot, 3 r. 28 p., f. 210
Nine cottages, f. and c. 570
Great Missenden, Bucks.—A freehold residence and 38 p. 110

By BRACKETT & SON (at Tunbridge Wells).

Horeham-rd., Sussex.—Diamond Farm, 77 a. 1 r. 19 p., f. 1,105

By A. T. & E. A. CROW (at Durham).

Coxhoe, Durham.—The East House Farm, 313 a. 0 r. 24 p., f. 8,500
Three houses and 37 p., f. 300
Two houses, blacksmith's shop, and 3 a. 0 r. 3 p., f. 560
Ten freehold cottages and 3 r. 12 p. 310
Quarrington Field, 2 a. 2 r. 32 p., f. 290

By THOMAS MARTIN (at Exeter).

Exeter.—Pennsylvania-rd., Maryfield, and 10 a. 3 r. 6 p., f. 8,000
1, 2, and 3, Connaught-ter., f. 1,100

By G. DURRANT & SONS (at Beccles).

Brampton, Suffolk.—A freehold farm, 133 a. 1 r. 12 p., f. 960
Potash Farm, 152 a. 3 r. 27 p., f. 800

July 29.—By FENN & CO. (at Colchester).

Beaumont, &c., Essex.—The Old House Estate, 179 a. 0 r. 13 p., f. and c. (in lots) 3,780
Abberton, Essex.—The Pantile Farm, 33 a. 2 r. 7 p., f. 380
Captain's and the Pound fields, 11 a. 0 r. 25 p., f. 195

By Messrs. SPELMAN (at Norwich).

Happisburgh, Norfolk.—A freehold and copyhold farm, 97 a. 0 r. 22 p. 1,910

July 31.—By B. P. ABRAMS.

Lewisham—26, Gilmore-rd., u.t. 79½ yrs., g.r. 5*l.* 5*s.*, r. 26*l.* 250

By ALLAN BOOTH.

Camden Town.—186, Camden-rd., u.t. 37½ yrs., g.r. 6*l.*, e.r. 65*l.* 500

By ELLIOTT, SON, & BOVTON.

Paddington.—3, Burlington-mews West, u.t. 59½ yrs., g.r. 5*l.*, r. 30*l.* 255
St. John's Wood.—64, Queen's-rd., u.t. 71 yrs., g.r. 25*l.*, r. 80*l.* 680

By GRANT, WHIELDON & CO.

Notting Hill.—Queen's-rd., f.g.r. 5*l.*, reversion in 42½ yrs. 175
Kilburn.—108 and 110, Charteris-rd., u.t. 92 yrs., g.r. 12*l.* 12*s.* 625

By HARMAN BROS.

Stoke Newington.—126, Lordship-rd., u.t. 72 yrs., g.r. 8*l.* 10*s.* 700
Clapton.—50, Clapton Common, u.t. 19 yrs., g.r. 17*l.* 200
Victoria Pk.—11, Gore-rd., u.t. 54½ yrs., g.r. 6*l.* 10*s.*, r. 36*l.* 430

By PERCIVAL HODSON.

Chelsea.—King's-road, &c., i.g.r. 115*l.*, u.t. 9½ yrs., g.r. 36*l.* 305

By HENRY HOLMES & CO.

Holloway.—210, Brecknock-rd., u.t. 69½ yrs., g.r. 6*l.* 6*s.* 455
Marylebone.—80, Charlotte-st., u.t. 9 yrs., g.r. 30*l.* 450
96, Bolsover-st., u.t. 21 yrs., g.r. 8*l.* 610

By NORMAN & SON.

Canonbury.—114, Grosvenor-rd., u.t. 50 yrs., g.r. 15*l.*, r. 70*l.* 800

By WALLETT & MORRIS.

Stratford.—1, 3, 7, 9, 11, 13, 15, 17, 19, 39, and 41, Jupp-rd., u.t. 58½ yrs., g.r. 43*l.* 1,700

By BUCKLAND & SONS.

Englefield Green, Surrey.—Town Green Farm, 44 a. 2 r. 33 p., f. and c. 5,000
Bishopsgate, Surrey.—Park Close and Home Close, 15 a. 3 r. 39 p., f. 5,250
Three enclosures, 9 a. 0 r. 28 p., f. and c. 1,500
Ashford, Middlesex.—West District-rd., enclosure of building land, 7 a. 0 r. 25 p., f. 1,400
Ford Bridge-rd., enclosure of meadow, 1 a. 2 r. 17 p., f. 260

August 1.—By C. H. BROWN.

Westminster.—36, Ponsonby-pl., u.t. 28 yrs., g.r. 6*l.*, r. 40*l.* 440
Bushey, Herts.—19, Villiers-rd., f. 205

By E. H. HENRY.

Clapham.—Queen's-rd., Heathfield Lodge, f., subject to a payment of 19*l.* for 35 yrs. 1,550
Dulwich.—74 to 80 (even), Whateley-rd., u.t. 70 yrs., g.r. 20*l.* 800

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Plans for Schools	Northfleet Sch. Bd.	15l. 15s.	Sept. 4
Town Hall	Borough of Workington	40l.; 20l.; and 10l.	Sept. 15
Bank, Norwich (Local Competition)	Directors of Norfolk & Norwich Savings Bank	50 gns.; 20 gns.; & 10 gns.	Sept. 16
Designs in Tunbridge Ware	Tunbridge Wells Tech Education Com.	3 gns.; 2 gns.; 1 guinea	Sept. 30

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Supply of Portland Cement for 12 Months	L.C.C.	Works Dept. Belvedere-rd. Lambeth, S.E.	Aug. 12
Waterworks	Biddulph R.D.C.	C. R. Hall, Engr. 1, West-st. Congleton, Cheshire	do.
Six Alms Cottages, Carrigans-lane, Londonderry	.....	R. E. Buchanan, Archt 33, Shipquay-st. Londonderry	do.
Heating and Engineering Works at Public Baths	Goole U.D.C.	F. Chambers, Surv. Council Offices	do.
Church, Chapel Green, Bradford	.....	T. H. & F. Healey, Archt. 42, Tyrrel-st. Bradford	do.
Two Villas, Stabling, &c. Keighley-road, Shipley	.....	R. Calvert, Archt. 4, Forster-sq. Bradford	do.
Engineering Works at Public Baths	Goole U.D.C.	F. Chambers, Surv. Council Offices	do.
Painting Work, University College	Nottingham Corp.	W. Smith, Guildhall, Nottingham	do.
Residence, Mayne-rd. Elgin, N.B.	.....	R. B. Pratt, Archt. County Bank House, Elgin	do.
Road Works, Back Royal-st. &c.	Bury (Lancs.) Corp.	Borough Engr. Bank-st. Bury	do.
Thirty Cottages and Institute, South Hetton, Durham	South Hetton Coal Co.	R. Hogg, Fatten Pasture, Murton, Sunderland	Aug. 13
Workshops at Cassland House, Cassland-road, N.E.	Governors of Hackney Inst.	A. W. S. Cross, 58 Conduit-st. Regent-st. W.	Aug. 14
Hall, Shops, &c. Wrexham	.....	T. Price, Archt. 77A, Lord-st. Liverpool	do.
Additions to Bablake Schools, Coundon-road, Coventry	General Municipal Charity Trustees	H. W. Chattaway, Archt. Trinity-churchyard, Coventry	do.
School and House, Cross Lanes	Ashwater (Devon) Sch. Bd.	S. Docket, Sch. Bd. Offices, Ashwater, Beaworthy, R.S.O.	do.
Steel Gasholder	Wandsworth & Putney Gas Light & Coke Co.	H. H. Jones, Engr. Gasworks, North-st. Wandsworth, S.W.	do.
*Erection of the Superstructure of Stone Church, St. Aidans Warwick-road, Carlisle	.....	C. J. Ferguson, 42, Clareville-grove, S. Kensington, S.W. &c.	do.
Heating Workhouse	Clitheroe Union	J. Eastham, Union Offices Clitheroe	do.
Foundations of Workshops, Offices &c.	Nottingham Corp	H. Walter, Archt. Newcastle-chambrs. Nottingham	do.
Wrought Iron Fencing	Leeds Corp.	City Engineer, Municipal-buildings	do.
Stone Fenders to Bandatands	do.	do.	do.
Plumbing Materials, &c. Belfast	Asylum Committee	Clerk, Asylum Offices, Belfast	do.
Concrete Work, Greens Haven	Berwick-on-Tweed S.A.	R. Dickinson, Boro Surv. Berwick	do.
Farmhouse, Llwydcoed, Aberdare	T. R. H. Williams	T. R. Hamlen-Williams, Fairfield, Pontypridd	do.
Rebuilding 49-50, High-st. Merthyr	.....	G. Kenshole, Archt. Duffryn House, Ystrad Mynach	do.
Main Drainage Works	Witney U.D.C.	N. Lailey, 16, Gt. George-st. Westminster	Aug. 15
Granite Road Metal (1,500 tons)	Felixstowe, &c. U.D.C.	G. S. Horton, Surv. Town Hall	do.
Road Works, Garrison-lane	do.	do.	do.
Granite Road Metal (1,500 tons)	Romford U.D.C.	G. Bailey, Council Offices	do.
Exterior Repairs and Painting a Workhouse	Strand Union	W. S. Cross & Kekwich, 18, Outer Temple, W.C.	do.
Additions to School, Tranmere	Birkenhead Corp.	C. Brownridge, C.E. Town Hall	do.
Tar-paving Works	Neath (Wales) T.C.	Boro Engr. Gwyn Hall, Neath	do.
Sewerage Works, Cobham, Surrey	Epsom R.D.C.	Beasley & Co. Engr. 11, Victoria-st. S.W.	do.
Pier, Southwold	Coast Development Co. Ltd.	W. Jaffrey, Engr. 3, Victoria-st. S.W.	do.
C.I. Mains	Barking Town U.D.C.	C. J. Dawson, Archt. Public Offices, Barking	do.
Post Office, Dundalk	Office of Public Works	H. Williams, Office of Works, Dublin	do.
Public Hall, Baslow, Derby	.....	S. M. Longadon, Archt. Bakewell	do.
Road Works	Llandudno U.D.C.	E. P. Stephenson, Engr. Church-walks, Llandudno	do.
Eight Houses, Batley Carr	Dewsbury Pioneers' Indus. Soc. Ltd.	Holtom & Fox, Archt. Westgate, Dewsbury	do.
Machine Shops, Upper Wortley-road Wortley	Leeds Fireclay Co. Ltd	A. Barrett, 20, Park-row, Leeds	do.
Additions to West End School Aldershot	.....	Friend & Lloyd, Archt. Aldershot	do.
Electric Lighting Station, North Shields	Tynemouth Corp.	J. F. Smillie, Boro Surv. Tynemouth	do.
Workshops, High-street, Eastleigh Hants.	.....	J. Crook, Archt. Eastleigh	do.
Additions to City Hospital, Colinton Mains	Edinburgh Corp.	Public Works Office, City-chmbrs.	do.
Gravel, &c.	Wembley U.D.C.	C. R. W. Chapman, C.E. Council Offices	do.
Cast Iron Water Pipes (17,000 tons)	Nottingham Corp.	S. Moore, St. Peter's Church Sqre, Nottingham	do.
Sewering, Levelling, &c. Fairfield Estate, Derby	.....	W. Swindell, Surv. Albert-st. Derby	Aug. 16
Tramway Paving (14,900 yds.), Steel Rails, &c.	Great Crosby U.D.C.	W. Hall, C.E. Council Offices, College-rd.	do.
Approach Works, Baker-street	Burham (Kent) P.C.	S. Wagon, Clerk, Aylesford	do.
Pair Semi-detached Villas, Dinas Powis	J. Morgan	W. H. D. Caple, Archt. 1, St. John's-square, Cardiff	do.
Additions to Chapel, Dearham Cumberland	Trustees	W. G. Scott & Co. Archt. Workington	do.
Girder Bridge near Aberystwyth	Cardiganshire C.C.	R. Lloyd, Surv. Tregaron, Cardigan	do.
Villa, Leeds-road, Harrogate	.....	J. Lane-Fox, Archt. Dewsbury	do.
Alterations, &c. Railway Hotel Workington	Cleator Moor Brewing Co. Ltd.	T. Eden, C.E. 58, Pow-st. Workington	do.
Sewerage Works, High Rows	Chester-le-Street R.D.C.	J. H. Mole, Surv. Council Offices	do.
Infirmary Alterations, 204, Hoxton street, N.	Shoreditch Union	F. J. Smith, Archt Parliament-mansions, Victoria-st S.W.	do.
Cast Iron Columns, &c. David-street Holbeck	Leeds Indus. Co-op. Soc. Ltd.	J. W. Fawcett, 10, Albion-st. Leeds	do.
Well Sinking, Clondalkin	South Dublin R D C.	T. Phelan, Boardroom, James-street, Dublin	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
*Swimming Baths	War Department	Archt. Office, Parliament-mansions, Victoria-street, Westminster	Aug. 16
Pair Semi-detached Houses, Sherborne	.....	T. Farrall, Architect, Sherborne	Aug. 17
Quay Planks	Penzance T.C.	Boro' Engr. Public Bldgs	do.
Paving Works, Albion-street	Castleford U.D.C.	W. Green, Surv. Carlton-st. Castleford	do.
Road Works, Altyre-road, &c.	Croydon T.C.	Boro Road Surv. Town Hall	do.
Seventeen Houses, Kingswood-road, Prestwich	Co-op. Soc.	Sec. Society's Offices, Warwick-st. Prestwich	do.
Electrical Plant, James-street	Carlisle Corp.	Prof. A.B.W. Kennedy, 17, Victoria-st. S.W.	do.
River Wall near Bath Bridge	Bristol Corp.	Engr. Cumberland Basin, Bristol	do.
Additions to Church, Stone, near Aylesbury	.....	Rev. J. L. Challis, The Vicarage, Stone	do.
Sewerage Works, Little Stanmore	Hendon R.D.C.	J. A. Webb, Surv. Stanmore hill, Great Stanmore	do.
Coastguard Buildings, Filey, Yorks.	.....	Coastguard Station, Filey	Aug. 18
Coastguard Buildings, Kirkwall, N.B	.....	Coastguard Station, Kirkwall	do.
Repairs, Painting, &c. at Chartham Asylum	Kent County Lunatic Asylum	W. J. Jennings, 4, St. Margaret-st. Canterbury	do.
Electric Lighting Apparatus	Motherwell (N.B.) Corp.	Prof. A. B. W Kennedy, 17, Victoria-st. S.W.	do.
Two Houses, Spencer-rd. &c. Waterside, Londonderry	J. Barr	R. E. Buchanan, Archt. 33, Shipquay-st. Londonderry	do.
Sewerage Filters, Melton, Suffolk	Asylum Visitors	A. T. Cobbold, County Hall, Ipswich	do.
Sewerage Purification Works	Adlington (Lancs.) U.D.C.	T. S. McCallum, C.E. 52, Corporation-st. Manchester	Aug. 19
Union Offices, &c. Compton-street	Ashbourne Union	Naylor & Sale, Archt. Irongate, Derby	do.
Painting Work, Commercial-rd.	Wolverhampton Corp.	J. W. Bradley, C.E. Town Hall	do.
Bridge over Far Stock, Dean	Cockermouth R.D.C.	J. S. Wilson, C.E. Courtbldgs Cockermouth	do.
Cellars, Subway, &c. Union-street Brewery, Trowbridge	J. H. & H. Blake, Ltd.	W. H. Stanley, C.E. Trowbridge	do.
Girder Bridge, Clough Bottom	Bury (Lancs.) Corp.	J. Cartwright, C.E. Boro. Engr.	do.
Bridge Steelwork, Abercynon	Glamorgan C.C.	T. M. Franklen, County Offices, Cardiff	do.
Volunteer Drill Hall, Doncaster	.....	J. E. Knight, Archt 33, College-st. Rotherham	do.
Asphalt Work, Sewers, &c.	Dronfield Sch. Bd.	W. J. Siddall, Archt. Hope-terrace, Dronfield	do.
Steamboat Slip, Loch Katrine	Glasgow Corp.	J. M. Gale, Engr. 45, John-st. Glasgow	do.
Hotel, Caerphilly	.....	E. M. Bruce-Vaughan, Archt. Cardiff	do.
Decorating Room, &c. Town Hall	Portamouth T.C.	The Town Clerk, Town Hall, Portsmouth	Aug. 20
Town Sewerage Works	Leigh-on-Sea U.D.C.	Bailey-Denton, Son, & Lawford, Palace-chambers, Westminster	do.
Technical Schools and Fire Station	Southend Corp.	W. A. Snow, Town Hall	Aug. 21
Electrical Work in Tramcars	Blackpool Corp.	R. C. Quin, Engr. Electricity Works, Blackpool	do.
Sewerage Works, &c. (7,300 yards)	Leigh-on-Sea (Essex) U.D.C.	Bailey-Denton & Co. Engrs Palace-chmbrs. Westminster, S.W.	do.
Seamen's Bethel, Falcon-st. Workington	Committee	W. G. Scott & Co. Archt. Victoria-bldgs. Workington	do.
Granite Road Metal	Stevenage U.D.C.	W. O. Times, Council Offices	do.
Electric Light Buildings, West Strand	Whitehaven Corp.	Boro. Engr. Town Hall	do.
Alterations to Lowe Bank, Esperley-lane, nr. Cockfield, Durham	.....	W. Parkin, Surv. Barnard Castle	Aug. 22
Sewer Bricks, Egremont	Wallasey U.D.C.	Engineer, Council Offices, Egremont	do.
Boiler, Pumps, Dynamo, &c.	Colwyn Bay U.D.C.	W. Jones, C.E. Council Offices	do.
Underground Convenience, Poultry Market	Manchester Corp.	City Surv. Town Hall, Manchester	do.
C.I. Pipes	Bury (Lancs.) Corp.	J. Cartwright, C.E. Town Hall	do.
Steel Rails, &c.	Darwen Corp.	Boro. Electrical Engr. Town Hall	do.
Eight Bacterial Filter-beds, &c.	Berkhampstead and Northchurch Sewage Disposal Works	J. Lemon, 9, Victoria-st. Westminster	Aug. 23
Thirteen Houses, Adelaide-street	Clayton-le-Moors Co-op. Soc.	J. W. Cooper, Society's Offices, Clayton	do.
Offices	Dowlais Iron Co.	E. A. Johnson, Archt. Merthyr	do.
Kerbing, Channelling, &c. Footpaths, Royston	Herts C.C.	County Surv. 41, Parliament-st. Westminster, S.W.	do.
Pipes, &c.	Southport Corp.	R. P. Hirst, Boro. Surv. Town Hall	do.
Drainage Works	Congleton Common Land Trustees	C. E. Hall, Surv. 1, West-st. Congleton	do.
School, Cardenden, Fife	Auchterderran School Board	Lyle & Constable, Archt. 3, Hill-st. Edinburgh	do.
Water Tower, Steel and Cast-iron Works, and Brickwork, &c. at Milton	West Hampshire Water Works	R. St. Geo. Moore, 17, Victoria-st. Westminster	Aug. 24
Sewerage Works	Plymouth Corp.	J. Mansergh, 5, Victoria-st. Westminster	do.
Sale Shops and Converting Premises	Rotherham Corp.	J. Platts, Archt. High-st. Rotherham	do.
Reservoirs, Oldpark	Belfast Water Commrs.	B. Hamilton, Water Office, Belfast	do.
Road Works, Dampy Court Estate, Blandford	.....	C. Hunt, Archt. Blandford	Aug. 25
*Latrine and W.C. Accommodation	Kensington & Chelsea Sch. Dist.	Cecil Sharpe, 11, Old Queen-st. S.W.	do.
Repairs and Painting Works, &c. at Baths, Whitfield-street, W.	Vestry of St. Pancras	C. H. F. Barrett, Vestry Hall, Pancras-rd. N.W.	do.
Wesleyan Church and Schools, Shoreham, Sussex	.....	Gordon, Lowther & Co. Archt. Finsbury House, Bloomfield-st. E.C.	do.
Steel Girder Rails (2,000 tons), &c.	Bradford Corp.	J. H. Cox, Engr. Town Hall	Aug. 28
Granite Setts (5,000 tons)	do.	do.	do.
New Municipal Buildings and Alterations of Public Hall	Borough of Godalming	Lanchester, Stewart, & Rickards, 1, Vernon-place, Bloomsbury-sq.	Aug. 28
Water Mains, &c.	East Ashford R.D.C.	Bailey-Denton & Co. Engr. 9, Bridge-st. S.W.	do.
Sewage Disposal Works, Westbury-on-Trym	Barton Regis R.D.C.	A. P. J. Cotterell, C.E. 7, Baldwin-st. Bristol	do.
New Board Schools and Swimming Bath	Chesterfield Sch. Bd.	Tiltman & Jackson, Archt. 29, Knifesmith-gate, Chesterfield	do.
Sanatorium	Malvern U.D.C.	W. Lambert, Council Offices	Aug. 30
Service Reservoir, &c.	Westbury (Wilts), &c. R.D.C.	W. H. Stanley, C.E. Trowbridge	do.
Workmen's Dwellings	Sunderland Corp.	Boro. Surv. Town Hall, Sunderland	Aug. 31
Electric Batteries, &c.	Battersea Vestry	Prof. A. B. W. Kennedy, 17, Victoria-st. S.W.	do.
Reservoir (17 000,000 gallons)	Carmarthen Corp.	Boro. Surv. Town Hall	Sept. 2
Widening Dock Entrance, Spencer Dock	Belfast Harbour Commissioners	G. F. L. Giles, Harbour Engr. Belfast	Sept. 4
*New Asylum	East Sussex Visiting Committee	G. T. Hine, 35, Parliament-street, S.W.	do.

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p.* iv. *Contracts, pp.* iv. vi. viii. x. *&* xix. *Public Appointments, pp.* xvi. *&* xix.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered
*Block of Schools at Chase Side, Enfield	Enfield Sch. Bd.	G. E. T. Laurence, 181, Queen Victoria-st, E.C.	Sept. 5
Coastguard Buildings, Cromarty, N.B.	Admiralty	Director of Works, 21, Northumberland-av. W.C.	Sept. 8
Intermediate School, Rhyl	.....	J. R. Jones, 4, Brighton-road, Rhyl	Sept. 9
River Bridge, Walton-le-Dale	Lancs. C.C.	W. H. Radford, Engr. County Offices, Preston	Sept. 11
*Asylum Superstructure	Croydon Corp	Boro Engr. Town Hall	Sept. 12
Cottage Hospital, Hallwill, Devon	.....	C. F. A. Voysey, Archt. 6, Carlton-hill, N.W.	Sept. 30
Eight Houses	Whaley Bridge Co-op. Soc.	C. W. Johnson, Archt. Whaley Bridge	No date
House, Haverton-hill, Billingham	.....	Mrs. Booth, South View, Billingham	do.
Laundry Buildings, Llanelian-road, Colwyn	Colwyn Bay Steam Laundry Co.	Taylor & Burgess, Archt. Longton	do.
Grand Stand, Anchor Ground	Darwen Football Club	J. B. Thornley, Archt. 45, Market-street, Darwen	do.
Alterations to Shops, Moorhead, Sheffield	T. Hill	J. P. Earle, Archt. Norfolk-row, Sheffield	do.
Staging, &c. Town Hall, Sutton-in-Ashfield	.....	Midland Co-operative Soc. Mount-street, Sutton-in-Ashfield	do.
Concrete Work and Brickwork, Swanscombe, Kent	.....	J. B. White & Bros. Ltd. Swanscombe	do.
Business Premises, Swansea	Cambria Cold Storage and Ice Co. Ltd.	T. Hurlington Jones, Bank Chambers, Swansea	do.
Chapel, Parchmore-road, Thornton Heath	Trustees	F. W. Ledger, Archt. 8, Philpot-lane, E.C.	do.
Additions to Business Premises, Widdrington, Newcastle	Co-operative Soc.	J. Hay, Colliery Office, Widdrington	do.
House and Shop, Chopwell, Newcastle-on-Tyne	.....	Plummer & Burrell, 13, Grey-street, Newcastle	do.
Alterations to Grey Horse Inn, Romiley	.....	Burton & Percival, Archt. 150A, Stamford-street, Ashton-under-Lyne	do.
Alterations to Business Premises, Grays, Essex	.....	C. M. Shiner, Archt. 3 Bond-ct, Walbrook, E.C.	do.
Two Villas and Four Cottages Hucknall, Torkard	.....	F. Gration, Architect, Hucknall	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Alterations to Cathedral, Lismore, Ireland	.....	The Deanery, Lismore	No date
Sewering and Forming Oakley's-road, &c. Long Eaton	.....	E. R. Ridgway, Surv. Long Eaton	do.
Artisans' Dwellings, Essington, near Wolverhampton	.....	J. Weller & Sons, Archt. Wolverhampton	do.
Excavation Works (2,000 cubic yards)	.....	J. Jackson, Archt. Barry-street, Bradford	do.
Bradford	.....		

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in.
Assistant Surveyor	Oldham Corp.	175*l.* per annum	Aug. 12
Engineer	Carlow (Ireland) R.D.C.	100*l.* per annum	Aug. 15
Clerk of Works	Kettering U.D.C.	3*l.* per week	Aug. 16
*Assistant	Corp. of Salford	120*l.* per annum	Aug. 17
*General Foreman	Walthamstow U.D.C.	3*l.* per week	Aug. 21
*Builder's Clerk	do.	30*s.* per week	do.
*Architectural Draughtsman	County Surv. Northallerton	3 gns. per week	Aug. 22
*Building Inspector	Acton D.C.	2*l.* per week	do.
*Architectural Assistant	County Boro' of Bury	120*l.* for first year, rising to 150*l.* by annual increments	Aug. 25
*Clerk	Wandsworth Board of Works	30*s.* per week, rising to 2*l.*	Aug. 28
*Road Foreman	Twickenham U.D.C.	2*l.* 10*s.* per week	do.
*Superintendent of Work's Dept.	Vestry of St. Mary, Battersea	260*l.* rising to 300*l.* per annum	Aug. 30
*Assistant for Sewers, &c.	Southgate D.C.	3*l.* 3*s.* per week	No date

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p.* iv. *Contracts, pp.* iv. vi. viii. x. & xix. *Public Appointments, pp.* xvi. & xix.

PRICES CURRENT OF MATERIALS:

WOOD.*

Per Petersburg standard hundred.

	£	s.	d.	£	s.	d.
White Sea: first yellow deals	17	0	0	18	0	0
Second do.	13	5	0	14	15	0
Third do.	11	10	0	12	15	0
Battens, 40s., 30s., and 15s. less respectively.						
Petersburg: first yellow deals	13	15	0	16	5	0
Second do.	10	15	0	12	5	0
Battens, 30s. and 20s. less respectively.						
Petersburg, white deals	9	15	0	11	15	0
Do. white battens	8	5	0	9	15	0
Riga, white deals	8	5	0	9	5	0
Swedish mixed yellow deals	13	5	0	16	15	0
Third do.	12	5	0	14	15	0
Fourth do.	10	15	0	11	15	0
Fifth do.	9	15	0	10	15	0
Battens, 30s., 20s., and 10s. less respectively.						
Whitewood, 10 to 20 per cent. less.						
Finnish unsorted yellow deals	9	15	0	10	5	0
Battens, 10s. and 5s. less respectively.						
Whitewood, 5 to 10 per cent. less.						
Norwegian second yellow battens	8	5	0	9	5	0
Third do.	7	15	0	8	15	0
Fourth do.	7	5	0	8	5	0
Whitewood, 10s. less.						
Danzig, Crown Deck deals, per 40 ft. 3 in.	0	15	0	1	5	0
Brack	0	12	0	1	0	0
St. Lawrence Pine deals, &c., per P.S.H.:—						
1st, Bright and Dry, regular sizes	20	10	0	27	0	0
" " oddments	13	10	0	20	5	0
2nd " regular sizes	15	10	0	18	15	0
" " oddments	11	0	0	14	10	0
3rd " regular sizes	9	10	0	11	0	0
" " oddments	8	0	0	9	0	0
4th " regular sizes	7	15	0	8	10	0
" " oddments	7	0	0	7	15	0
St. Lawrence Spruce deals, &c.						
First, regular sizes	8	15	0	10	15	0
Second "	7	10	0	8	10	0
Third "	7	5	0	8	0	0
Fourth "	6	5	0	7	0	0
Oddments and battens at 20s., 10s., 7s. 6d., and 5s. less respectively.						
New Brunswick Spruce deals, &c.	7	5	0	8	0	0
Oddments, battens, and fourths	6	10	0	7	10	0
United States pitch pine planks and boards	8	5	0	11	15	0
Prepared Boards, per square						
1¼ by 6½ and 7 in. 1st yellow		11	6		14	9
" " 2nd "		10	0		11	9
1 by 6½ and 7 in. 1st "		8	6		10	9
" " " white		8	0		8	9
" " 2nd yellow		8	0		9	9
" " " white		6	6		7	3
¾ by 6½ & 7 in. 1st & 2nd yellow		7	3		8	0
" " " white		6	9		7	6
¾ by 6½ and 7 in. 1st yellow and white (grooved, tongued, and beaded)		6	3		8	9
¾ by 6½ and 7 in. 2nd yellow and white (ditto)		5	3		7	6
¾ by 6½ and 7 in. 1st yellow and white (ditto)		5	3		6	0
¾ by 6½ and 7 in. 2nd yellow and white (ditto)		4	9		5	6
Narrower widths at 10 per cent. less.						
3rd quality at 15 per cent. less than 2nd.						
Danzig and Memel Fir Timber— per load						
Best middling	2	10	0	3	10	0
Good middling and Second	2	0	0	3	5	0
Common middling	1	10	0	2	10	0
Undersized	1	10	0	1	15	0
Swedish and Norwegian Balks	1	5	0	1	15	0
Baltic Oak Timber—						
Danzig and Stettin—Large	3	5	0	3	15	0
Small	2	0	0	2	5	0
Quebec Timber per load						
Yellow Pine	3	15	0	5	10	0
Oak	4	5	0	6	5	0
Elm	4	17	6	5	15	0
Ash	4	2	6	5	5	0
Birch	3	7	6	5	5	0
New Brunswick, &c., Birch	2	2	6	2	17	6
American Pitch Pine Timber	3	6	0	4	0	0
Wainscot, per log, 18 cubic ft.—						
Crown (Eng. & Dutch) } nominal	5	5	0	7	0	0
Brack } nominal	4	10	0	5	10	0
Lathwood, per cubic fathom—						
Petersburg	4	0	0	6	10	0
Riga and Danzig	4	10	0	5	10	0
Norway Poles, per ft. run	0	0	1	0	0	1½
Oak Staves, per mille full size pipe						
Memel, Crown	210	0	0	220	0	0
Brack	180	0	0	190	0	0
Danzig	165	0	0	175	0	0
Bosnia, single Barrel (nominal)	28	0	0	30	0	0
United States, Pipe	35	0	0	42	10	0
Hogshead, extra heavy and double extra	27	10	0	32	10	0
Indian Teake per load	11	15	0	16	15	0
British Guiana Greenheart	0	0	0	8	0	0
Mahogany, per foot superficial—						
Honduras, cargo average	0	0	4½	0	0	6
Nicaragua, do.	0	0	4½	0	0	5½
Tabasco, do.	0	0	4	0	0	6½
Mexican, do.	0	0	3½	0	0	4
Panama, do.	0	0	3	0	0	4
African, do.	0	0	3½	0	0	5
Cuba, do.	0	0	5½	0	0	7½
St. Domingo, do.	0	0	5	0	0	7
Do. Curls (good to prime)	0	0	9	0	1	3
Walnut, American (logs)	0	2	3	0	4	6
Do. do. (planks and boards)	0	2	0	0	7	6
Italian, per foot superficial	0	0	3	0	0	7½
Black Sea, per ton	6	0	0	12	0	0
Satin Walnut (logs) per foot cube	0	1	0	0	1	3
" (planks and boards)	0	2	0	0	2	9
Sequoia (Californian redwood), per foot cube	0	1	9	0	2	0
Whitewood, American (logs)	0	1	3	0	1	6
" " (planks and boards)	0	1	6	0	2	9
Quartered oak " " "	0	2	3	0	4	0
Kauri pine (logs)	0	1	9	0	2	0
" " (planks)	0	2	3	0	2	9
Jarrah (planks)	0	2	3	0	2	6
Lancewood spars each, fresh and large	0	5	0	0	8	0
Lancewood spars, ordinary to fair	0	4	0	0	5	0
Degame spars	0	8	0	0	10	6

METALS.

	£	s.	d.	£	s.	d.
IRON—Pig, in Scotland ton	3	10	3	0	0	0
Bar, Welsh, in London	6	0	0	6	5	0
Do. do. at works in Wales	5	15	0	5	17	6
Do. Staffordshire, in London	6	5	0	7	10	0
COPPER—British cake and ingot	80	10	0	81	0	0
Best selected	81	0	0	81	10	0
Sheets, strong	85	0	0	86	0	0
Chili bars	76	8	9	0	0	0
YELLOW METAL lb.		6¾d.			7¼d.	
LEAD—Pig						
Spanish ton	14	10	0	0	0	0
English Com. Brands	14	15	0	0	0	0
Sheet, English, 6 lbs. per sq. ft. and upwards	15	15	0	0	0	0
Pipe	16	5	0	0	0	0
ZINC—English sheet ton	29	0	0	0	0	0
Vieille Montagne	30	0	0	0	0	0
Spelter	24	15	0	25	0	0
TIN—Straits	145	15	0	0	0	0
Australian	146	0	0	146	10	0
English Ingots	148	10	0	149	10	0
Banca	0	0	0	0	0	0
Billiton	0	0	0	0	0	0

OILS.

	£	s.	d.	£	s.	d.
Linseed ton	20	2	6	20	5	0
Cocoanut, Cochin	29	5	0	0	0	0
Do. Ceylon	25	15	0	0	0	0
Palm, Lagos	24	0	0	0	0	0
Rapeseed, English, pale	23	10	0	0	0	0
Do. Brown	22	0	0	0	0	0
Cottonseed ref.	17	15	0	18	15	0
Oleine	17	5	0	19	5	0
Lubricating U.S.	0	5	9	0	7	9
Do. Black	0	5	0	0	6	0
TAR—Stockholm barrel	1	6	6	0	0	0
Archangel	1	0	0	0	0	0
Turpentine	35	5	0	0	0	0

* The prices named are for the wood as imported and landed in the docks. Ten per cent., approximately, should be added in order to arrive at the current trade prices.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BERKHAMPSTEAD.—For additions to Isolation Hospital, Aldbury, for the Hospital Committee. Mr. E. H. Adey, architect, Shrubland's-terrace, Berkhampstead:—

Nash, Young, & Horne	£225 0	H. & J. Matthews.	£184 0
E. Wright	220 0	Henry Fincher	175 0
		Smith & Son, Tring*	174 10

CROYDON.—For converting 92 and 93, Waddon New-road, into a club, and for erecting a drill-hall in the rear, for the Parish Church Lads' Brigade. Messrs. R. M. Chart & Son, architects, Croydon:—

D. W. Barker	£690 0	J. Winburn	£596 10
S. Page	685 0	C. Waller	591 0
E. P. Bulled	650 0	Huntley Bros.	575 0
H. Bacon	610 0	Goulder*	545 0
Smith & Sons	598 0		

CROYDON.—For the erection of cowsheds at Beddington, for the Corporation of Croydon. Messrs. R. M. Chart & Son, architects, Union Bank-chambers, Croydon. Quantities by the architects:—

Goulder's Exors.	£947	Akers & Co.	£793
Burnand	920	F. Nunn	782
Waller	815	Smith & Sons	775
Stewart & Sons	798	Worsfold & Co.	720

[Architects' estimate, £785.]

ENFIELD CHASE.—For rebuilding the "Little Wonder" beerhouse, Enfield Chase, for Messrs. McMullen & Sons, Limited, Hertford. Mr. James Farley, architect, Old Cross, Hertford:—

W. Barrett	£2,188	L. & W. H. Patman	£1,600
Hobbs & Son	2,077	Carnells, Limited	1,586
Lawrence & Son	1,779	Matthews & Son	1,572
Fairhead & Son	1,655		

[*See also next page.*

LONDON.—For the rebuilding of shop and premises, No. 911, Old Kent-road, S.E., for Mrs. M. A. Chalk. Mr. J. Halsted Waterworth, architect and surveyor, 281A, Queen's-road, New Cross Gate, S.E. :—
Sydney R. Best, Brockley* £751

LONDON.—For the rebuilding of shop and premises, No. 899, Old Kent-road, S.E., for Mrs. M. A. Chalk. Mr. J. Halsted Waterworth, architect and surveyor, 281A, Queen's-road, New Cross Gate, S.E. :—
Sydney R. Best, Brockley* £855

LONDON.—For sundry alterations and additions to No. 289, Queen's-road, New Cross-gate, S.E., for Mr. R. Wilson Cameron. Mr. J. Halsted Waterworth, architect and surveyor, 281A, Queen's-road, New Cross-gate, S.E. :—

Sydney R. Best	£289 0
Simmonds & Son	235 10
J. & A. Oldman, New Cross*	158 0

LONDON.—For the erection of an addition to "Buchanan," Queen's-road, New Cross-gate, S.E. Mr. J. Halsted Waterworth, architect and surveyor, 281A, Queen's-road, New Cross-gate, S.E. :—
Sydney R. Best, Brockley* £349 10

LONDON.—For the erection of a sub-station for the Chelsea Electricity Supply Company, Limited, at Milner-street, Chelsea. Mr. Alfred Roberts, architect, 18, Nelson-street, Greenwich, S.E. :—

Higgs & Hill	£5,124	F. & H. F. Higgs ..	£4,617
Killby & Gayford ..	4,694	Holliday & Greenwood	4,544
B. E. Nightingale ..	4,635	Lole & Lightfoot* ..	4,496

LONDON.—For repairs and decorations at No. 59, Christchurch-road, Streatham-hill, S.W., for Mrs. Annie Slade-Jones. Messrs. Clark & Hutchinson, architects, 28, John-street, Bedford-row, W.C. :—

Selway & Sons	£263	C. H. Marrison	£176
Crabb & Son	203	P. Clarke*	145

MITCHAM.—For the extension of a varnish warehouse at Messrs. Norman, Smee, & Dodwell's factory, Church-road, Mitcham. Messrs. R. M. Chart & Son, architects, Croydon :—

Bulled	£389	Bacon*	£264
Burges	285		

MITCHAM.—For the erection of a pair of villas, Figg's March, Mitcham, for Mr. G. Humphreys. Messrs. R. M. Chart & Son, architects, Croydon :—
Parslow* £975

MITCHAM.—For the erection of a house at the Cricket Green, Mitcham, for Dr. O. B. Shelswell. Messrs. R. M. Chart & Son, architects, Croydon :—

Burges	£2,374	Bacon	£1,997
Burnand	2,270	Haydon*	1,795
Stewart & Sons	2,185		

MITCHAM.—For restoration of the pinnacles on the parish church, Mitcham, for the vicar and churchwardens. Messrs. R. M. Chart & Son, architects, Croydon :—
E. J. Burnand* £360

ST. ALBANS.—For the erection of a steam laundry, with dwelling-house and stabling, in Belmont-hill, for the Sanitary Laundry, St. Albans. Mr. F. W. Kinneir Tarte, architect, 12, St. Peter's-street, St. Albans. Quantities by Mr. J. B. Colwill, 5, Belmont-hill :—

Francis Newton..	£4,570 0	Miskin & Sons ..	£3,777 0
J. & W. Savage..	4,000 0	E. Dunham, St. Albans*	3,379 15
Boff Bros.....	3,912 0		
J. P. White	3,885 0		

SHEFFIELD.—For the construction of storage cellars' &c., at the Old Albion Brewery, Ecclesall-road, Sheffield, for the Directors of the Old Albion Brewery, Limited. Messrs. Hall & Fenton, architects, &c., 14, St. James's-row, Sheffield. Quantities by the architects :—

A. Bradbury	£4,565 0	Wilkinson & Sons	£3,965 0
M. Grantham....	4,235 0	Margerrison & Sons	3,718 18
Jno. Eshelby	4,100 0	T. Margerrison ..	3,710 0
Martin & Hughes	4,066 0	E. Hancock, Horam-road*	3,705 0
Powell & Son....	4,030 0	B. Powell.....	3,690 0
Mastin & Son ..	4,020 0		
A. Moore.....	3,977 0		

[All of Sheffield.]

SUTTON.—For repairs, &c., at the "Jenny Lind" Inn, Sutton, Surrey. Messrs. R. M. Chart & Son, architects, Croydon :—

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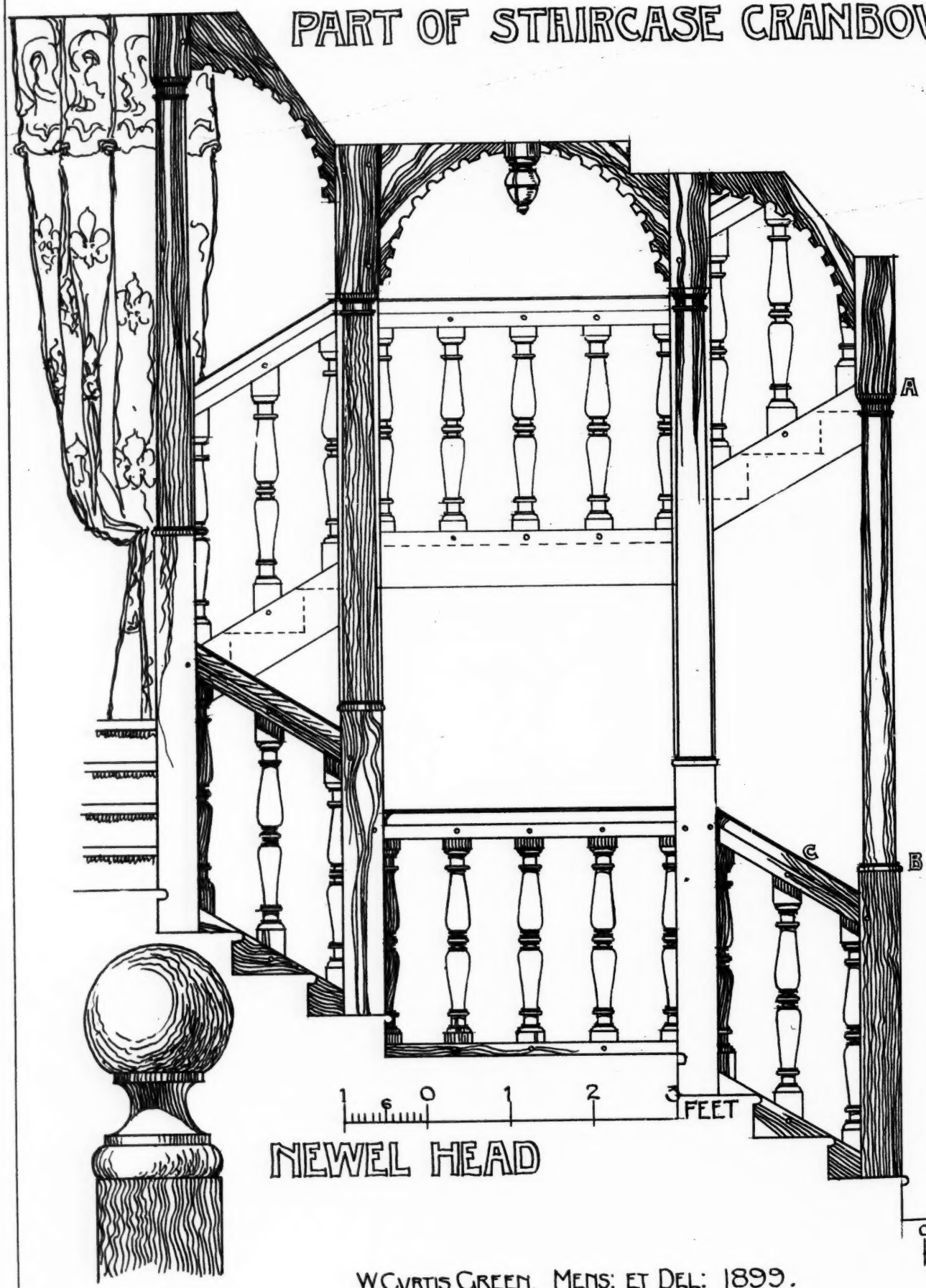

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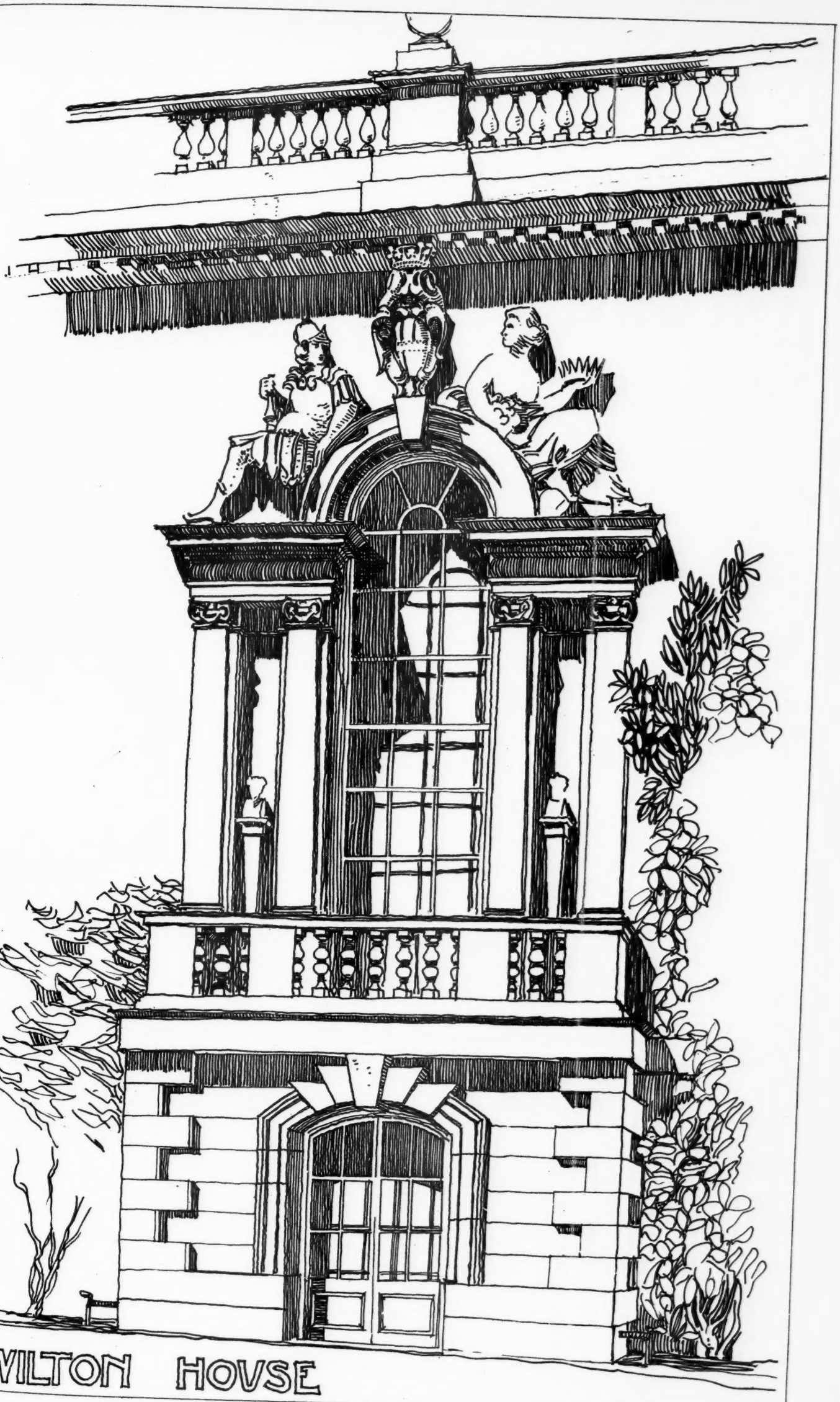

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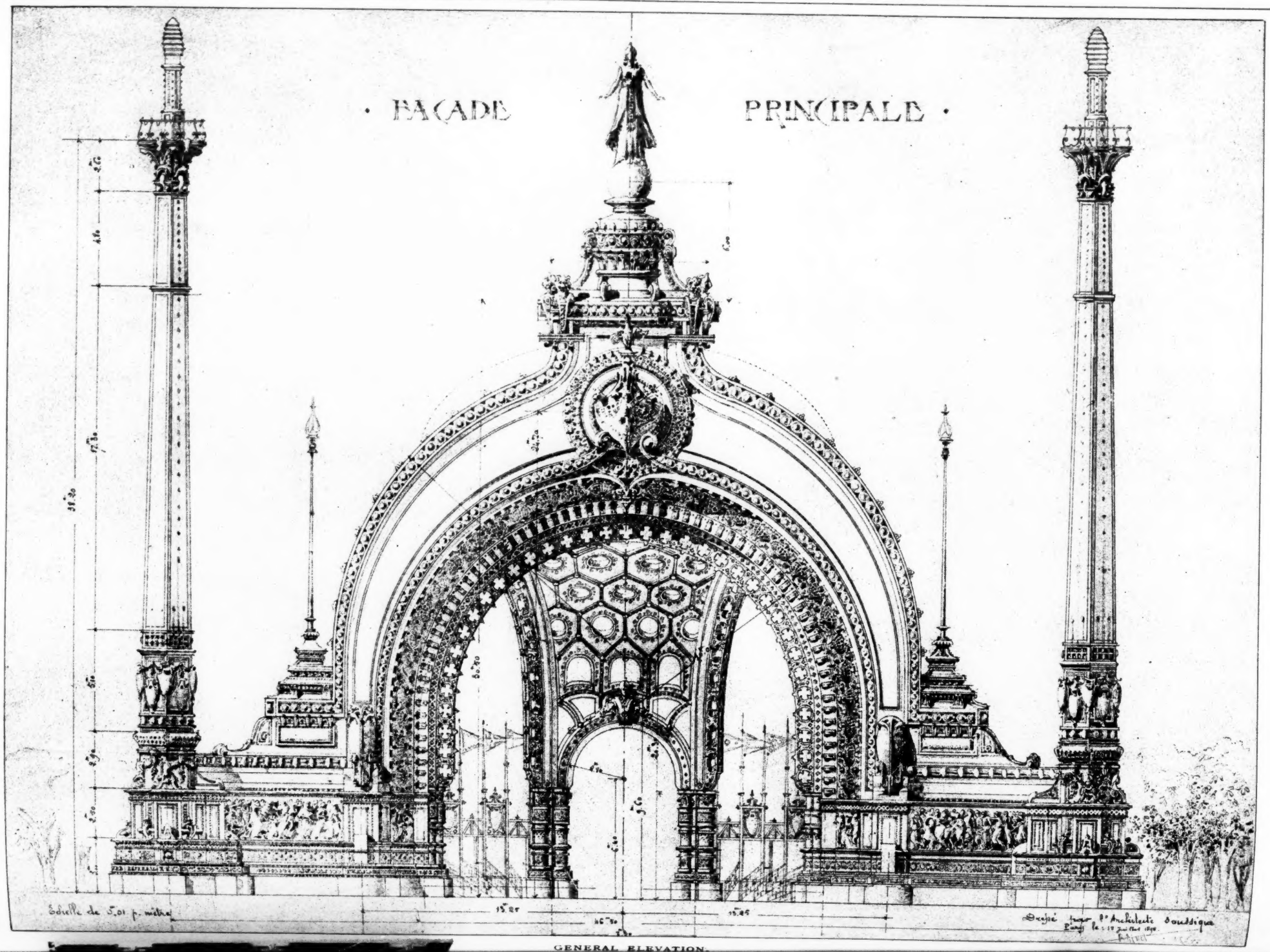

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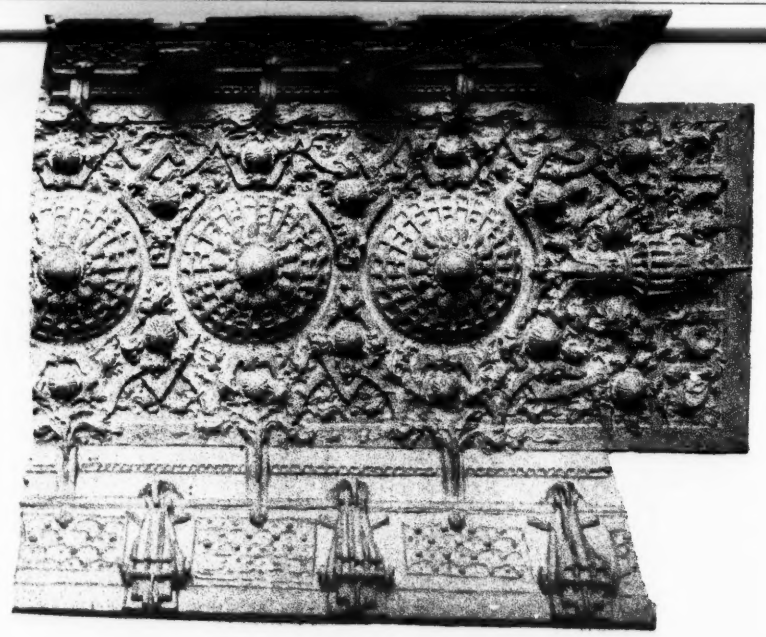

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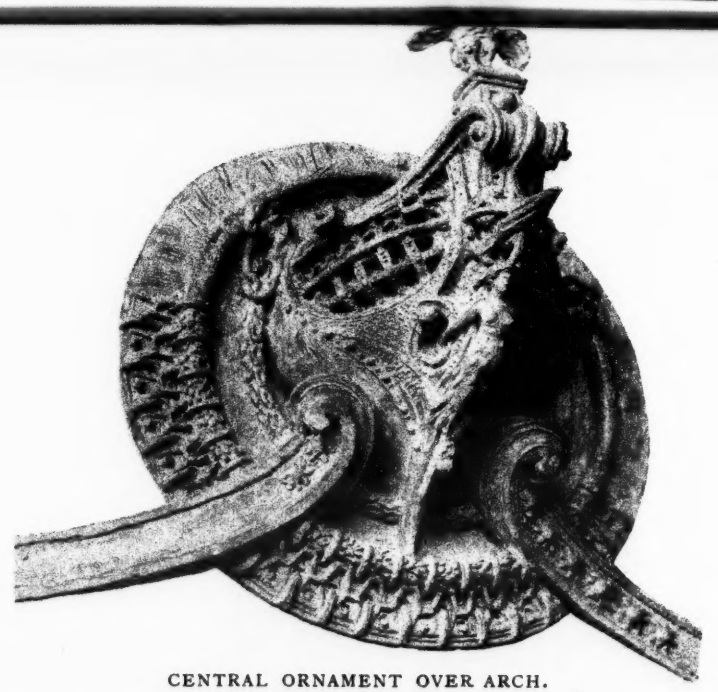

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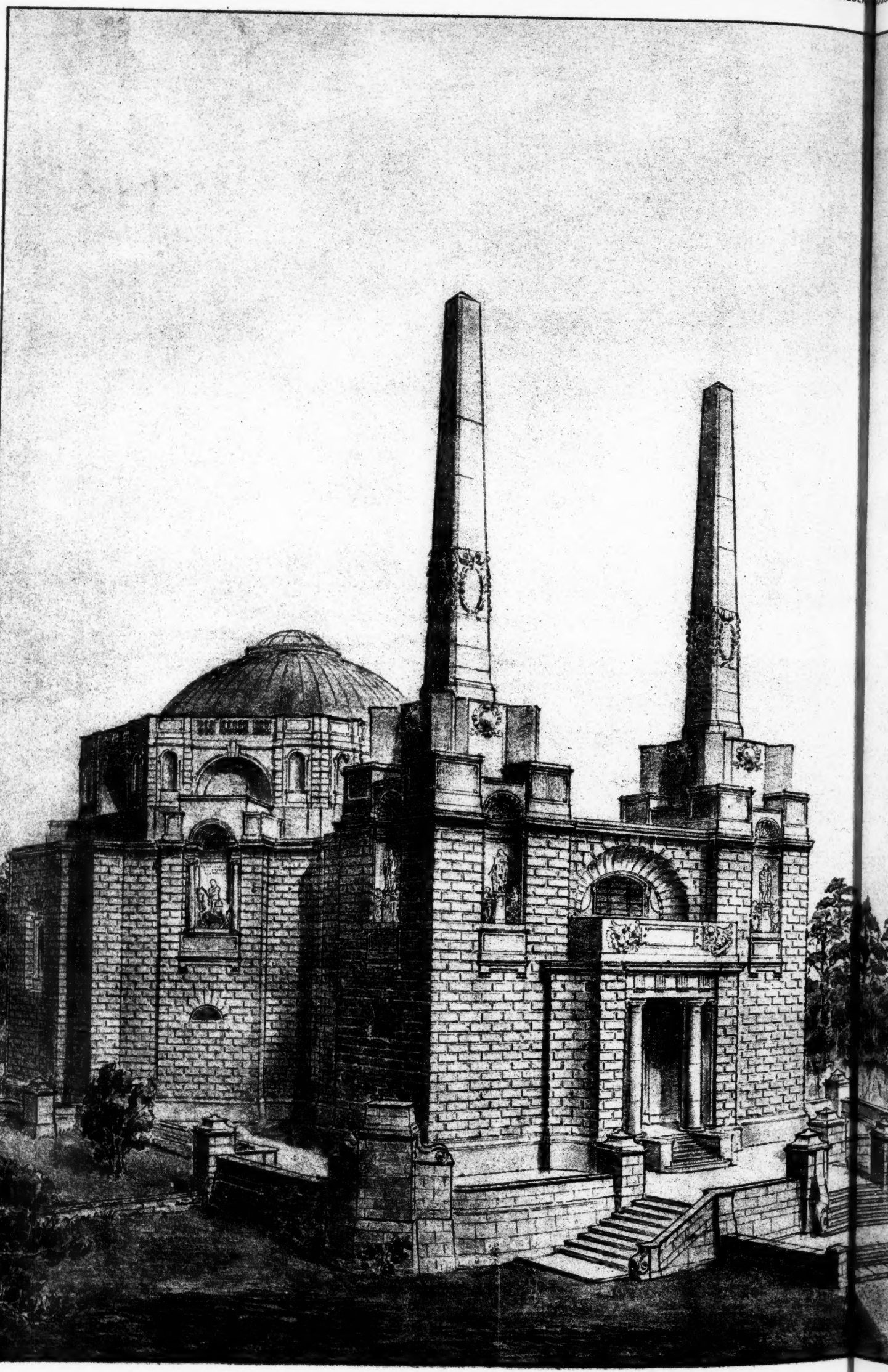

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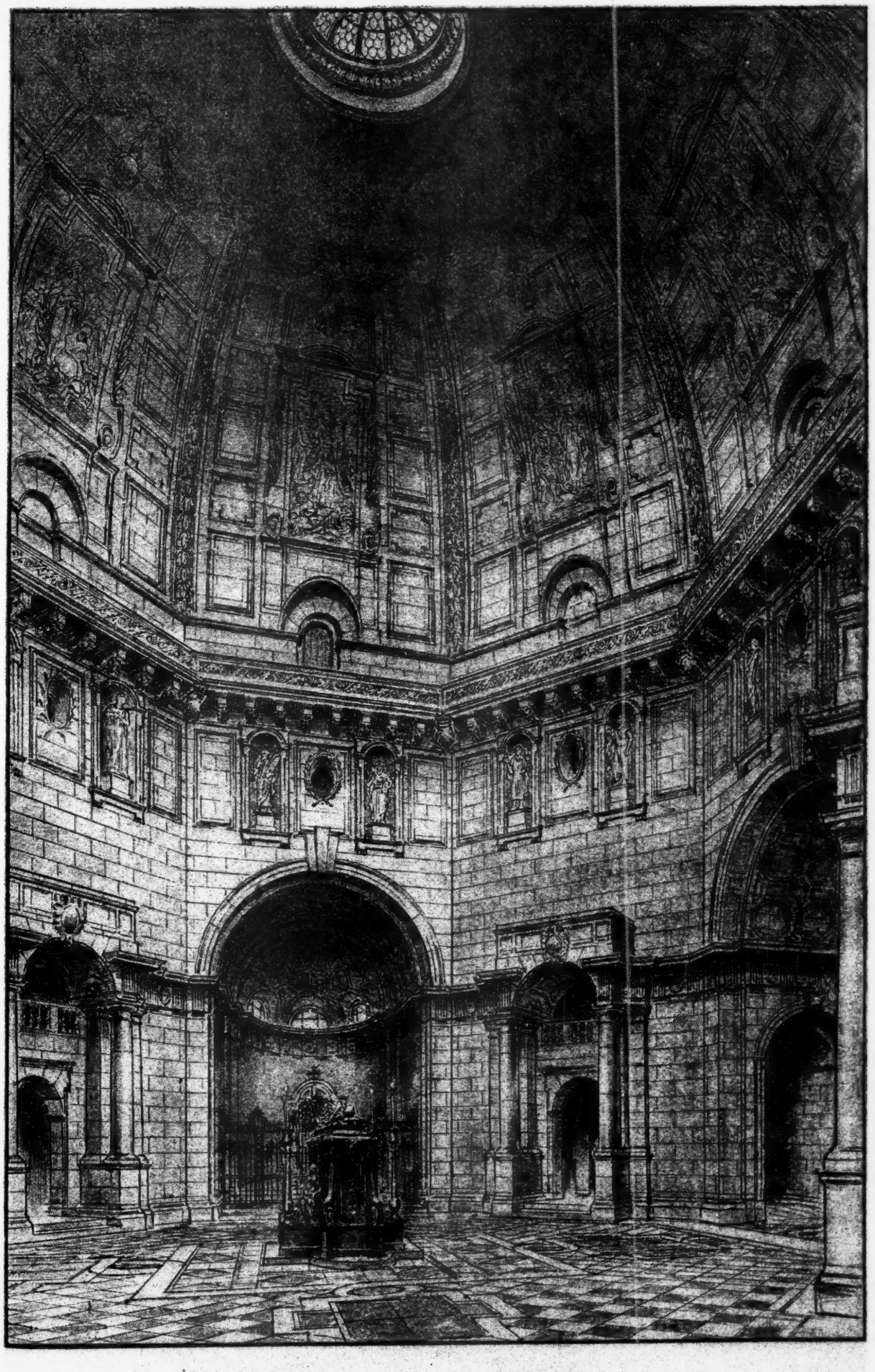

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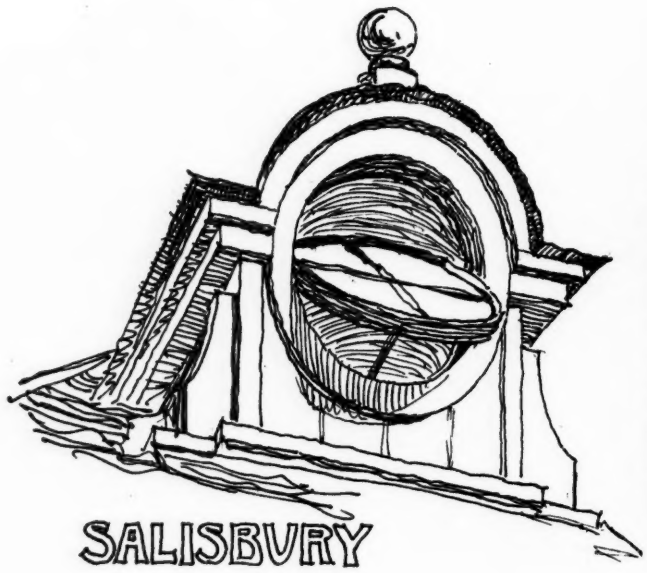

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